Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Sound Waves, Telephone Magazine and The Telephone

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Representation at Washington.

Under the Interstate Commerce law, as amended, telephone companies which directly or indirectly do an interstate business are made common carriers and subject to certain regulation by the Interstate Commerce Commission. The paragraphs of this law which apply to telephone companies have been quoted in TELEPHONY and there is no need to refer to them again here. It is, however, to be noted particularly that one of the paragraphs provides that telephone companies shall within 60 days after the law goes into effect designate an agent in Washington upon whom service of notices may be made; and that in case of failure of any company to be so represented, legal service is obtained by posting an order in the office of the Interstate Commerce Commission at Washington.

The Commission will not take up its telephone duties until the first of September, or shortly thereafter, and haste in designating an agent under the terms of the law is not required. It is further to be observed that there is no penalty directly attached to the failure to appoint such an agent. But a company failing to observe an order duly issued and posted in the office of the Commission would have no right to claim improper service, even if it were not aware of such an order being issued.

Several telephone companies have inquired as to the good faith of certain persons or firms who have sent out letters offering to perform this service for various sums. It is well known that in Wisconsin, when supervision over the telephone business was taken up by the Wisconsin Railway Commission, a number of individuals or firms imposed upon telephone companies, and extracted money for services which were necessary, or could have been performed at a much lower price than the figures proposed by those who hastened to get out circular letters.

TELEPHONY is not aware that any of the companies or persons who have solicited the right to represent telephone companies under the Interstate Commerce Law, as their agents at Washington, are not properly qualified to act as such agents, or are imposing unreasonable charges. But it does seem desirable that telephone companies should make this representation a co-operative plan, and that all Independent corporations should be represented by an agent well known to the Independent field, and bearing proper credentials.

We understand that arrangements are being made by the

National Independent Telephone Association and several leading companies to employ an agent who can be relied upon to care for the interests of Independent telephone clients, and that his services to each company will probably be so slight that he can afford to undertake the duties for a very low, practically a nominal charge; probably less than $5 per year. It seems advisable that companies who are contemplating the appointment of an agent at Washington should hold off for a time and investigate this matter, or await an announcement in the columns of TELEPHONY shortly after the first of September. Any inquiries on the subject will be cheerfully answered by this paper.

We cuss, complain and grumble at the telephone, but how could we get along without it?

Classification of Exchange Offices.

With the development of modern telephone methods certain terms have come into use which are sometimes a little confusing as to their exact meaning. The expressions "sub-office," "branch office," and their like, should be clearly defined.

In the beginning of the telephone exchange business one central office easily served the needs of the public. When the number of subscribers became relatively large and the exchange area great, the length of subscribers' lines was considered to be excessive. To shorten it, an office was opened at some convenient point near the center of a group of stations. From this office these stations were served and connected to the first office by trunk lines. The office first established was termed the "main" office. The second was called a "branch" office, being regarded merely as an overflow, to take care of business which would be handled from the main office if the distances and numbers were not so great.

As cities and telephone exchanges have increased in size, the branch exchanges have been growing more numerous and of greater importance. In many cases the branch offices are now of almost equal importance as the main office in all functions and may justly be regarded as co-ordinate. Each has its wire chief, chief operator, trouble clerk and information operators. An interlacing system of trunks and call circuits connects all offices, according to the traffic between them. Yet the main office retains its name, for it is the business headquarters of the company.

It is well to keep clearly in mind the meanings of these various terms, and to avoid looseness in their use. The term "exchange" embraces the whole area or district in which service is given as one unit and for one price. It may consist of one office or several offices. The latter is known as a "multi-office exchange," for no matter how many offices it comprises, it is still one exchange. A "private exchange" is an exchange devoted to the service of one business and not connected to the public exchange. It becomes a "private branch exchange" when trunk lines connect it to the public exchange system. The term "branch exchange" should not be used if by it is meant a "branch office," that is, one office of a multi-office exchange.

The introduction of automatic telephone switchboards did not at first change the system of names. Main and branch offices were installed on the same basis as in manual practice. But the invention of the line switch brought in a new idea. It became the practice to install a few line switch units and connectors near the center of the region which they serve, but to place all the trunking switches for them in the nearest branch or main office. Thus the "sub-office," as it was called, is dependent on the branch office in a manner different from the dependence of the branch offices on each other. A branch office possesses within itself all the apparatus necessary for completing connections between its own subscribers' lines. It utilizes the switches of other offices only when necessary to connect with their subscribers. The "sub-office," on the contrary, depends on switches in the nearest branch office for all connections, even for those between its own subscribers' lines. It is electrically supervised from the branch office to which it is attached. Of late the expression "district station" has been applied to the sub-office.

Thirty years ago the telephone was a toy. To-day it is a universal necessity.

Depreciation Accounting.

Conservative management requires that definite accounting shall be made for depreciation. Telephone companies have for the first time found themselves squarely up against the proposition of accounting for it under legal requirements for the reasons connected with the corporation tax law set forth in Mr. Ford's paper printed in other pages. Depreciation charges are a material factor in the rate rulings of the Wisconsin Railway Commission. We have recently seen a statement by the auditor of one of the best managed Bell companies setting forth that a new system of accounting has been introduced, with a view to determining the actual charges which shall be made for depreciation, and that it will be a matter of years before a definite conception of such charges can be formed from data thus accumulated.

There is, nevertheless, available at the present time sufficient information to permit a telephone corporation to put its business on a safe basis. The policy of providing for depreciation accounting according to the best knowledge available, is safe.

Any other plan invites unfavorable criticism. The day is past when the personal credit of leading investors affords a sufficient guarantee of corporation securities. The smaller the company, or the more widely scattered its stock and bonds, the greater is the need for putting its affairs on a conservative basis. The courts have ruled that rates cannot be raised because losses have accrued as a result of not caring for depreciation.

Mr. Ford touches upon a vital point when he says "The depreciation fund (reserve) should be available in cash when needed."

The telephone is one of the great institutions and conveniences of modern life.

PUBLICITY

—

WHY IT PAYS

—

THE RIGHT KIND AND HOW TO GET IT

—

By Roy Manker

The Montana Independent Telephone Company is "in right" with the people.

It is not because it is a square-deal company, managed by progressive business men, that this organization is breaking records.

It is because the public knows what it is doing, likes it, and gets busy to help it along. How does the public know? That is Mr. Manker's business. In this article, to help the work along in other places, he gives up some of the secrets of his success.

Mr. Roy Manker.

Telephone publicity costs less than nothing.

You don't believe it?

But you must first appreciate the fact that judicious advertising is an asset, not a liability, to any legitimate business enterprise.

Advertising space in newspapers and magazines costs money, but yields profits.

There are three kinds of newspaper and magazine space. Two may be purchased and both have their certain value. Then there is the other, the costless kind.

Many advertising men show a preference for display space; others for the kind of material which appears in the news columns, although not always news, but which can be so written as to present the appearance of unpaid-for news.

The writer prefers a combination of display, paid readers and the free kind, rather than the exclusive use of any one of the trio.

Every aggressive telephone company is a producer of genuine news of general public interest.

Nearly every newspaper welcomes any news "story" which touches, influences and affects the lives of even a small percentage of its readers.

This is where the value of the publicity man of a telephone company comes in. And what business institution affects a greater number of people than a telephone company?

Newspapers, metropolitan and country, charge from 10 cents to $5 a line for what are known as "readers." But the charge does not fix the value.

The individual and general influence of a news "story," telling of the advantages, growth and development of a telephone system, can be reckoned in value far in excess of any line charge assessed by any reputable news medium.

Newspapers can be induced to use many hundreds of dollars worth of telephone news every year without cost to the telephone company, and without being robbed of any of their traditions.

It is the telephone publicity man's first duty to his company to keep his eyes and ears open for news features which will give him a basis for a genuine item of news interest. A strong, sound news feature will give him a foundation upon which may be built an article of incalculable benefit to his company.

Of almost equal importance is his ability to cultivate and maintain friendly relations with the newspaper men in his city or territory.

This sometimes costs his company a few dollars, but the investment pays magnificent returns as items which otherwise would not be published are given space.

The proverbial attempt at Bohemianism among newspaper men the world over continues to pauperize the profession, hence their unblushing adaptability to the open pocketbook policy of the publicity man, who is "seen coming." This condition has existed for many years and cannot be changed.

Few telephone men there are who have yet come to know that human interest—the thing the newspaper editor most prizes—plays a frequent part in the conduct of a telephone company.

A concrete example of the human interest phase of telephone publicity was shown in the recent publication in the Butte Sunday Miner of the picture of little Margaret Flanigan, together with the kind of stuff that creates widespread comment and moulds public opinion.

Heading a two-column layout was the caption, "The Youngest Director in Montana," followed by this interesting bit of reader:

"To be the youngest coupon-clipper in Montana is the distinction, so far as known, that has fallen to pretty little Margaret Flanigan, who at less than three years of age became a bona fide stockholder of the Montana Independent Telephone Company. Margaret is the daughter of Mr. and Mrs. J. J. Flanigan of Butte.

"Mr. Flanigan, a retired Great Northern railroad conductor, is a member of the board of directors of the Montana Independent Telephone Company. Margaret is now four years old and is generally conceded to be one of the treasure state's most beautiful children.

"For more than a year Margaret has been the owner of $100 worth of stock of the telephone company, and since she was given a vote in the organization she has clipped six interest coupons for her savings bank account and has drawn six dividends on her stock—a tidy sum for the little miss.

"'Papa's a di-wec-tor in the tel-e-foam company, an' papa always minds me, so I'm a di-wec-tor, too,' Margaret proudly tells her playmates."

The interest aroused among the 35,000 readers of the Butte Miner, following the publication of the above human interest "story" has manifested itself in many ways, and its effect could not have done other than strengthen the Independent telephone company in the eyes of the 35,000 persons who read it.

This two-column ten-inch story cost the Montana Independent Telephone Company nothing. How much was it worth?

Here is another example of the sort of publicity news-

papers are prone to handle without expense to the company:

"Fond Independent Pampers Its Girls—

"With the establishment today of a reading, rest and lunch room in its general office building at 122 West Granite street, the Montana Independent Telephone Company has the distinction of giving to its girl employes perhaps the only innovation of this character maintained by any automatic telephone company in the United States. While in a few of the larger cities of the country such rooms are maintained by companies which require the services of hundreds of operators, the automatic service here and elsewhere dispenses with the 'hello' girl except at the complaint, long distance and information boards, and makes this acquisition to the Independent company's headquarters all the more notable"—Butte Inter-Mountain.

Does not the publication of such news as this increase the popularity of a telephone company among both the employer and the employed? And does not increased popularity mean increased business?

The publicity man who has had a general newspaper training, who has been everything from cub reporter up to managing editor and who knows newspaper men as they know themselves, is best fitted for the requirements of his position. Whatever technical advertising experience he may have had will also add greatly to his versatility and ability to write the sort of paid-for (display) copy that pays for itself by both bringing in new business and holding the business already obtained.

Brevity is one of the bulwarks of the publicity man. Editors do not like to wade through hundreds of words of dry, uninteresting copy. When genuine news has run out, it is time to quit. Readers are just as sensitive as editors. For this reason 100 words of vital, pungent, telephone news, though less startling than the murder of some millionaire, will generally find its way into the columns of the newspaper, whereas 1,000 words of "boosting" your own game will, in most instances, land intact on the editor's "dead hook."

There is more "boost" in a clean-cut news story of 100 words, stripped of all attempt to do the "biggest, best and cheapest" stunt, than in 1,000 words of the sort of stuff that reeks in self-laudation and makes its paid-for status apparent to every reader.

The public is not so gullible as many advertisers believe.

This is why much of the paid-for publicity of the Bell telephone company had better never have emblazoned itself on the pages of the American press.

The public reads, but does not always believe.

No publicity man can do justice to his position without the co-operation of the officers, local and outside managers and the heads of all the departments of the company.

In President Lane the writer has found the ideal co-operator of his ten years' experience as newspaper and publicity man. It would be well for other telephone men to absorb some of the proclivities of Mr. Lane.

He knows the value of publicity.

Because he knows its value he does not "squeeze the eagle" before it reaches the Publicity Bureau.

This is material co-operation of the kind that inspires double effort and, therefore, double results.

He suggests, advises and governs the general conduct of the Publicity Bureau, but he does not rob the publicity man of whatever individuality he may possess by assuming the attitude of "you don't know as much about the publicity business as I do because you are working for me."

The man of affairs has no time for an analytical study of the psychology of his advertising. He knows what he wants, but he gives his publicity man abstract instructions to be carried out in detail. It is the detail which demands the closest application for the creation of the concrete facts necessary to make advertising profitable instead of wasteful, but without the master mind the embryo idea which germinates into the big advertising campaign would be lacking.

The Independent telephone business needs a few more master minds with unpuckered purse strings, for the time is opportune for forcing a general recognition of the strength, the magnitude of the Independent telephone industry of the United States.

The newspapers of the country are with us, the magazines will support us, the people are universally urging us toward a greater and faster development, but we lethargically continue to superinduce sore eyes by almost daily gazing at the omnipresent "one policy, universal service, the best service on earth," line of Milk street dope.

Let's have a greater number of publicity bureaus, and one national Independent publicity bureau.

They won't cost us a cent!

Thr-r-r-r-ee.

The Chicago Telephone Company, to reduce the percentage of wrong number errors, has introduced complicated pronunciation in its operating rooms.

Two policemen were traveling down Dearborn Ave., in Chicago. "I see her now," said one; and they assumed more stealthy attitudes in continuing their way.

When they had arrived within hearing of a young woman sitting alone upon a door step, they came to a full stop.

"'Tis strange indeed that she is alone," said the policeman unfamiliar with the situation. "Sure, and she's a likely looking girl.

"Every night for a week she has sat there mumblin' and groanin' like a lost soul in purgatory."

"Surely she's not right in her moind," said the other.

"Right or wrong, she's doin' no harm," replied the other.

"She's been bit by a mad dog," insisted the other.

"Sure, and now she's growling like a bear, and in a minute more she'll be hissin' like a serpent and thin it'll be a gurgle like a drownin' illiphant," explained the first officer.

"Sure, an' I dunno," said the second.

"There it is, the cackle like a layn' hen," said the first.

"Sure, and have ye tould the sargint?"

"That I have not, but here he comes."

"And what are you bys a standin' here for," said the sergeant.

"Sure and can't yez hear," said the first officer.

"Of course I can hear. Youse get along on yer beats. And I'll have yez understand that that's Molly, the first cousin of my own brother's aunt from Killarney. She's a learnin' how to say three be the Telephone code. Away with yez."

A young lady entered a dentist's office, sat down in the chair of torture without a tremor and allowed the dentist to examine her teeth uncomplainingly. When he had poked and probed and punched and prodded to his evident satisfaction he said:

"Why, my dear young lady every filling in your mouth is loose and two of your teeth are about to fall out."

"I know," the young lady murmured.

"May I ask what is the cause of it. I see no signs of violence or concussion."

"Well, you see," the young lady explained, "I'm a telephone operator and I have been trying to follow instructions and say three so it will not sound like any other sound on the face of the earth. We are supposed to say it this way. Thr-r-r-r-ee. Do you see?"

"I can't truthfully say that I do," replied the dentist, extracting a gold filling from his eye.—(Contributed).

Telephone Engineering Around the Golden Gate*

By Arthur Bessey Smith

The telephone requirements of a large city differ in certain essential points from those of a city of small or moderate size. The chief of these are as follows:

Measured service.

Private branch exchange service.

Interborough service.

Although these exist to some extent in smaller places, they

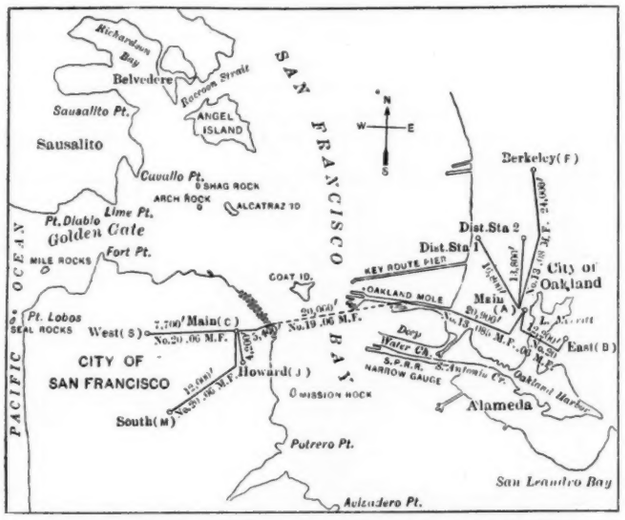


Fig. 1. Office Locations in San Francisco and Oakland.

are peculiarly important considerations in the telephone service of a large and congested city. They are practically the conditions which had to be met by the automatic telephone exchanges installed in Oakland and San Francisco, California. For this reason it is felt that a statement of the chief engineering problems of these cities and how they were solved will be of general interest.

The Problem Stated.

The requirements to be considered in designing a telephone system for this region may be briefly stated as follows:

1. A system which shall give satisfactory telephone transmission between all points in the whole territory.
2. A system which provides satisfactory accessory conditions, such as ease, rapidity, and accuracy of completing and controlling connections, methods of charging for service and means for discrimination in the same.

The consideration of these general requirements as applied to the case in hand causes their expansion into ten conditions, viz.:

1. Quiet, clear transmission over all talking circuits.
2. Easy, quick and accurate completion of local connections within each exchange district.
3. Provision for the cosmopolitan nature of the population, especially regarding the diversity of languages.
4. Measured service.
5. Free service on calls to certain classes of stations.
6. Private branch exchange business.
7. Quick and accurate completion of calls between exchange districts, especially between San Francisco and Oakland.
8. Accuracy in charging the accounts of credit toll users.
9. Credit and cash toll work between exchanges.
10. Provision for the harmonious mutual working of different types of apparatus used in the several exchanges.

Local Exchange Apparatus.

Oakland—The locations of the offices are shown in Fig. 1. On account of the many descriptions of exchange apparatus which have been previously given, only the types and chief functions will here be recalled. In Oakland the 3-wire, common battery, trunk release apparatus is used, having a line switch for each subscriber's line. A single line switch with a few details is shown in Fig. 2, while Figs. 3 and 4 show the theoretical and physical grouping into a unit. These units are grouped in connection with the selectors and connectors as shown in Fig. 5. A call from a subscriber's line entering the exchange at the left is passed on to an idle first selector, which selects the office. Calls to other offices pass over the trunk lines marked *C*, while local calls go over the trunks marked *B* to the second selectors, third selectors and connectors. Calls from other offices come in over the trunks marked *D*.

The subscriber controls the switches by grounding the two line wires a certain number of times. The release is effected by momentarily grounding both line wires at once.

San Francisco—The relative locations of the four offices are shown in Fig. 1. The apparatus is of the 2-wire common battery trunk release type, with primary and secondary line switches. A typical grouping is shown in Fig. 6. The use of secondary line switches renders any first selector in a group of 100 accessible to any one of 2,000 subscribers' lines and effects great economy. Secondary line switches are also used to bring into one group the outgoing trunks to another office.

The subscriber controls the apparatus by merely breaking

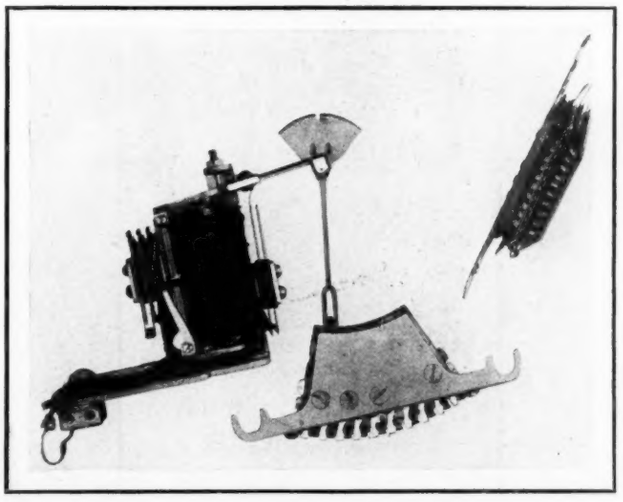


Fig. 2. Line Switch and Bank.

and making the circuit through his telephone, with no earth return circuit.

1. *Telephone Transmission*—The quality and loudness of speech transmission are greatly affected by the nature of the switching circuits, as well as that of the outside lines. Fig. 7 shows a simplified circuit between two stations in the same

*Abstract of a paper presented at the 27th annual convention of the American Institute of Electrical Engineers, Jefferson, N. H., June 27-30, 1910.

exchange, but in different offices. There are four "bridges" or shunt paths across the circuit, each composed of a relay or a pair of relays, which are highly inductive so as to occasion but small loss of telephone current. The impedance of each path from line to earth is made as nearly as possible

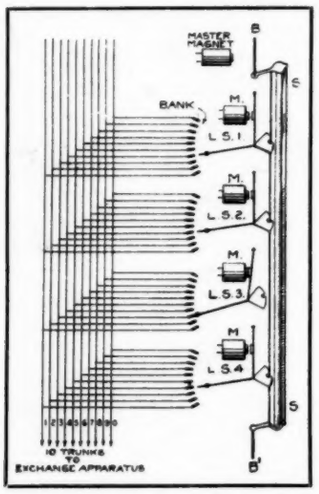


Fig. 3. Grouping of Line Switches.

equal to that of its mate. No extra coils are bridged to one side of the line and none are inserted in series: Each subscriber is supplied with current for talking from battery in his own central office.

2. *Method of Calling*—This consists in rotating a dial once for each digit in the call number. The degree of rotation is fixed by a series of finger holes, marked with the ten digits from "1" to "0." In San Francisco the ringing is automatic, requiring no additional action on the part of the subscriber. Hanging the receiver on the hook releases all the switches practically instantaneously.

3. *Diversity of Languages*—The method of calling above described is of special convenience to the many people who speak only foreign languages. The Arabic numerals are com-

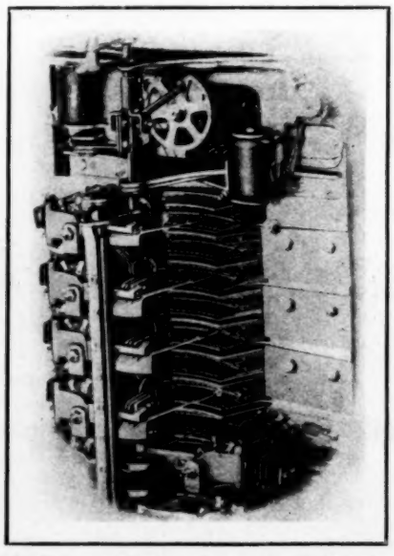


Fig. 4. Close View of Line Switch Unit.

mon to practically all nationalities represented in San Francisco, except the Chinese. For the latter a special lettering has been made, which is shown in Fig. 8.

4. *Measured Service*—One of the conditions met in managing a telephone system in a large city is the desirability of charging for the service in proportion to the amount of service rendered. This is ordinarily done by attaching a meter to each subscriber's line. The requirements of a meter are as follows:

1. It must register only once for each completed connection, rejecting those in which the called station fails to answer.

2. It must make no charge for connection to certain classes of telephones, such as fire, police, information and complaint desks, etc.

Though Oakland is served on the flat rate basis, measured service is required in San Francisco. The meter, attached to the line switch, must not record until the called station answers. The latter, by means of connector, must control the condition of the two wires leading back through selectors to the meter on the line switch, which may be in a different office. Two changes of condition are available, reversal of current and change in current strength. The latter is undesirable on account of its interfering with conversation to stations set aside for free service. Hence the reversal of current was used. To avoid permanent magnets a two-coil meter was devised. The connector is so arranged that when the called

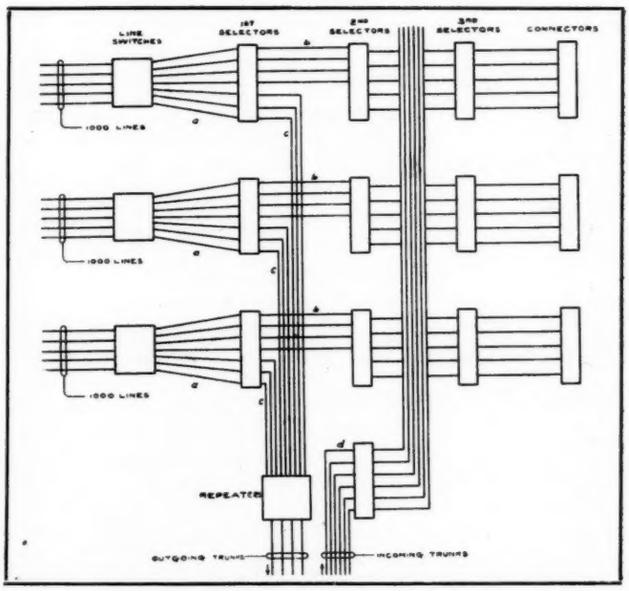


Fig. 5. Trunking in Oakland.

station answers, the current supplied to the calling line is reversed. This causes the meter to record one call. It works through a range of line resistance from zero to 1,500 ohms. Its line coil is of low resistance, and is short circuited during conversation. The reversal of current is accomplished in such a manner as not to cause inconvenience to the calling subscriber.

5. *Free Service*—Calls for "Information," wire chief, police, etc., are free. These lines are grouped in one or more special groups, whose connectors are so wired that the current flow to the calling subscriber is not reversed when the called station answers.

If the subscriber obtains a wrong number, and gets an answer, the meter cannot discriminate, and hence records one call. Experience has shown that such a small per cent of wrong numbers are obtained, that they may safely be neglected. This is especially true if wrong calls due to carelessness in the use of the dial be omitted. For these it is right to expect the subscriber to pay. The same is true of regular manual practice, for if a subscriber calls for a wrong number and gets it he is expected to pay for it.

Cash measured service is furnished by means of coin boxes

attached to the line wires at the subscribers' stations. When the called station answers the reversal of current operates a magnet which short circuits the transmitter and shunts the receiver with a resistance. The user can hear faintly the voice of the called subscriber, but cannot talk. Dropping a coin in the chute removes the shunts to allow conversation. Calls to free stations result in no reversal of current, so that no coin need be deposited.

6. *Private Branch Exchanges*—In this district a large number of business houses operate private branch exchanges for transacting business within their own organizations. These boards are manually operated and are connected by trunk lines with the automatic public exchange.

The trunks to a private branch board are treated exactly like subscriber's lines in the public exchange, each being wired to a line switch for calls to the automatic system. They terminate in jacks and signals on the manual private boards and can be used for establishing connections either to or from the subscriber. The operator is provided with a calling device which may be switched by keys to any cord circuit. With this the operator calls into the automatic exchange and arrange-

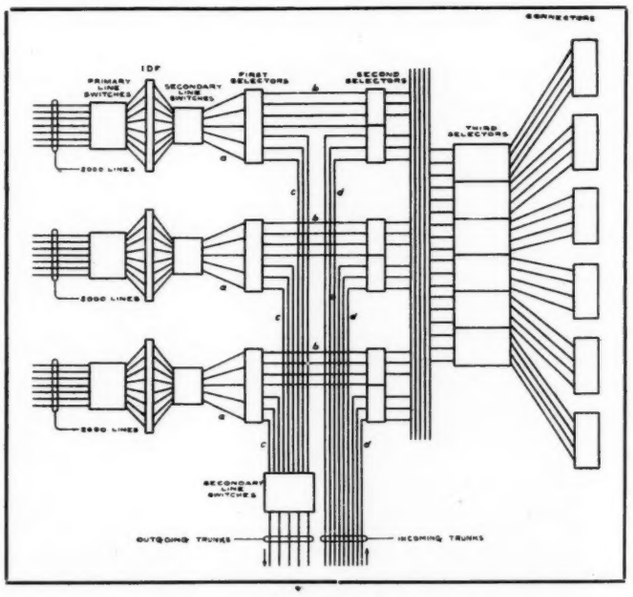


Fig. 6. Trunking in San Francisco.

ments are made so that complete double supervision is secured on all calls.

Calls from the general public to a private branch exchange are handled by a group of special switches known as "rotary connectors." These are the same as ordinary connectors, except that they possess the added ability to select an idle trunk from a group of trunks.

Let us suppose that the call number of a certain wholesale house is C-4251 and that four trunks are required for the business. The connector switches in the 4,200 group of the Main or "C" office which serve this board. These four trunks will be multipled to the first four sets of contacts in the fifth level of the connector banks, that is, corresponding to numbers 4251, 4252, 4253 and 4254. Contacts 4253 are connected to the "busy tone" so that if it happens that all trunks are occupied, the calling subscriber will receive the busy signal and be induced to release. The private contacts 4255 of the several connector switches are not multipled together. If while all four trunks are occupied more than one call is received for the busy number, the second and later calls will also stop on 4255 and not be forced past to 4256, which might be assigned to other service.

If desired, the remaining four numbers in this same level, 4256, 4267, 4258, 4259 may be given to some other private branch board. In fact, any grouping of the trunks of a level may be used, it being only necessary to reserve one set of contacts at the end of each group for busy indication.

7. *Transbay and Suburban Toll*—The fact that a charge is made for all calls between the two cities makes it necessary

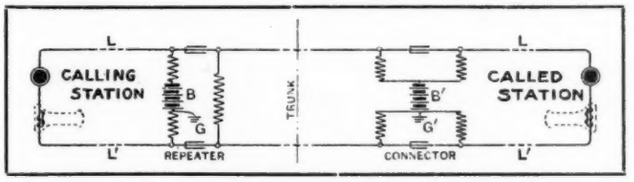


Fig. 7. Simplified Inter-Office Talking Circuit.

to employ operators for putting up these connections, making records of them.

Long distance toll work is necessarily handled in a different manner from suburban calls. In the former, the telephone company agrees to bring together two persons, in the latter merely two telephones. This is sometimes called the "two-number basis" inasmuch as only the two numbers are recorded, no attention being paid to names.

A common method is to record the call and tell the subscriber to hang up his receiver. When the line is ready he is called by the line operator. In handling the traffic between San Francisco and Oakland the "rapid fire" method was adopted as quicker and better. The recording operator was caused to complete the connection automatically to the distant exchange and to allow conversation to proceed at once. It dispenses with the aid of an operator in the distant office.

A little later will be described the system of checking which was devised to correct errors in numbers given by calling subscribers.

To make a suburban call the subscriber pulls "0" on the dial, which selects an idle line to the suburban board. An operator answers by two questions:

"What number do you wish?"

"What is your number?"

She tickets in duplicate the information received, together with the number of the incoming trunk used. The duplicate

Fig. 8. Dial on the Chinese Telephones.

ticket is passed to the checking operator seated directly in front. The two following operations are performed simultaneously.

A. The suburban operator calls the distant station by means of her dial.

B. The checking operator verifies the correctness of the

number given by the originating subscriber as his own. If wrong, she passes the duplicate ticket back to the suburban operator, who at once severs the connection, and calls the subscriber's attention to the error. Entering the corrected number on the tickets she again passes the duplicate to the checking operator for verification, and, as a rule, allows the conversation to proceed.

Double supervision is given by two lamps, which have the usual functions.

The completed circuit over which conversation is carried on is shown in simplified form in Fig. 9.

The release of the first selector is controlled by the cord circuit of the suburban board, so that the subscribers may move his hook up and down without releasing prematurely.

8. *Toll Checking Apparatus*—The general plan of checking is to connect to the incoming toll trunk in use a source of alternating current which produces a musical tone. By independent automatic switches the checking operator calls the number given. If correct she will obtain connection to the same line as that over which the call was received by the suburban operator, and by listening can hear the tone. The condition is shown in Fig. 10. The subscriber at the right has called the suburban operator over the incoming toll trunk. The operator has answered and made out the ticket. The checking operator has used a checking trunk to secure connection with the number given. At this point she presses the check tone key which connects to the incoming toll trunk a source of alternating current which produces a sound differing from the regular busy tone of the exchange. If the number is correct the tone will be carried back over the toll trunk to the connector multiple and thence over the checking trunk to the checking operator.

The ordinary connector cannot be used by the checking operator in picking up the calling subscriber's line, because the latter is protected by a busy test which will not permit an ordinary connector to establish connection. For this work one check connector is provided in each hundred group. It is devoted exclusively to testing and checking. It is provided with three pairs of wires, one pair (*A* and *B*) for carrying the tone, another pair (+ and —) for operating the magnets for lifting and rotating the wipers, and a third pair for auxiliary purposes.

Guard lamps are provided to inform the suburban operator of the action of the checking operator and to prevent the latter from checking wrong trunks.

9. *Credit and Cash Tolls*—The small proportion of the business which is handled on the cash basis is done from stations provided with regular coin boxes which by an audible signal reveal the denomination of coins deposited.

10. *Two-Three Wire Operation.*—To give a general idea of the trunking between the two cities, a circuit from San

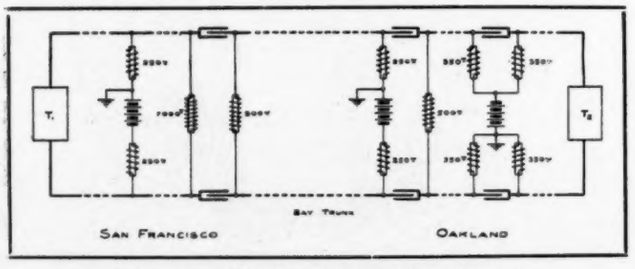


Fig. 9. Simplified Transbay Talking Circuit.

Francisco to Oakland will be briefly described. Each of these trunks extends from multiple jacks and visual busy signals on the San Francisco toll board to a first selector repeater in the main office, Oakland. As a selector, this machine picks out an idle trunk to the desired office, as a repeater it changes the simple break and make of the 2-wire system into the grounding of vertical and rotary lines required by the 3-wire system.

Each suburban operator has a set of plugs and cords. A calling device is mounted at each position, arranged to be switched into any cord circuit. A call is answered with the

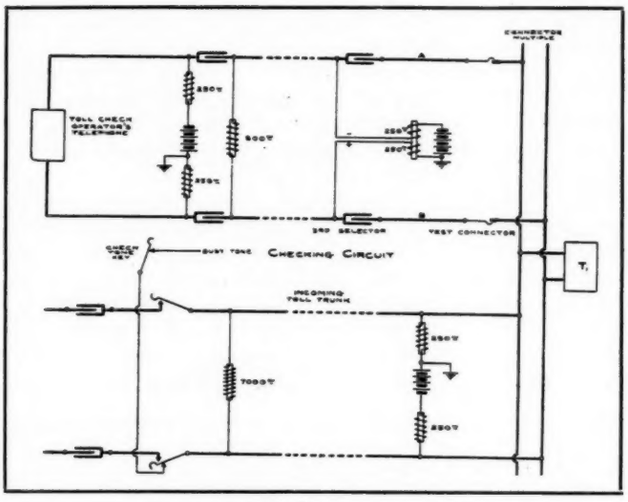


Fig. 10. Simplified Toll Checking Circuit.

answering plug of a pair. An idle trunk to Oakland is selected by inspecting the visual busy signals and the calling plug inserted in the jack. The calling device is then switched into the circuit and rotated so as to call the desired number.

For supervisory purposes a 500-ohm polarized relay is bridged across the cord circuit. Normally the current from the first selector repeater in Oakland holds this relay so as to light its associated lamp. When the called station answers it causes the current mentioned to reverse, thus swinging the polarized relay over and extinguishing the supervisory lamp.

Agitation in Louisville, Ky., for Placing Wires Underground.

"We will start the work of putting our wires underground in the downtown districts, recently designated by the city ordinance, within the next week," said Phillip S. Pogue, general manager of the Home Telephone Company, Louisville, Ky., to a TELEPHONY representative. "In our case, the task will be neither long nor arduous, as our company has so few wires on poles in the central portion of the city that the work of laying underground connections will not occupy more than a month, working on an easy schedule.

"When the Home company began operations in Louisville, underground connections were laid, not only in practically all of the downtown district, but also in the outlying portions of the city, so that we would not be greatly affected if the City Council should require that all the telephone poles should go to the 'bone-yard.'"

Charles B. Norton, a prominent citizen of Louisville, recently wrote an "open letter" which was published by a leading Louisville daily, calling attention to the fact that Second street, as well as Fourth avenue is much frequented by traffic and is an exceptionally narrow street. In view of these facts, Mr. Norton proposes to "strike while the iron is hot" and induce the Council to pass an ordinance prohibiting the use of overhead wires, suspended from poles, on Second street. The movement in favor of underground connections for electric wires, it seems, is growing apace in Louisville and it will not be long, according to present indications, until the telephone pole will be as scarce in this city as the traditional hen's tooth.

What is the Idea?

The Westinghouse Matter—Biting Off the Nose to Spite the Face—The End.

By J. C. Kelsey

Last week I stood in the great old Alamo where Davy Crockett and his heroic fellows fought four thousand Mexicans.

They were surrounded and each man knew that death was near.

General Travis drew a line and asked each man to consider carefully whether he wished to cross the line and surely die, or try to escape. But one man chose to escape.

Later I stood on the field of New Orleans where General Jackson defeated the flower of the British army. Such a useless slaughter, because war had ceased.

And I wondered then if these old heroes would like the trend of present-day matters.

Several years ago the Westinghouse Electric & Manufacturing Company was in sore distress.

It was surrounded by a bitter enemy, far more bitter than any type of army.

Surrounded by creditors, and sore pressed by development expenses, it drew the line.

As the story goes, the employes subscribed for one million dollars worth of the new stock.

They were to pay for it in twelve equal monthly payments.

The storm broke, and these faithful employes suffered a ten per cent cut in pay and more of them suffered a total discharge.

The financial agents insisted upon collecting those stock subscriptions.

The men were out of work.

They were sued and dragged into court.

George Westinghouse, a hero of modern times, insisted upon releasing the employes from their obligations.

But George Westinghouse did not realize that he was in the hands of sharks.

He fought manfully for his men, and finally his humanity made him "a poor business man." And now he is out.

Of course Mr. Westinghouse will still have work and will not starve.

But the fact remains that most of the saviors of our country were not "business men."

General Grant failed miserably in business.

And there are thousands of examples.

Would "Old Hickory" Jackson and Davy Crockett be pleased with such tactics as have been employed by the Westinghouse bankers?

Hardly!

If humanity is a criterion of a poor business man then some of the directors of the American Telephone & Telegraph Co. need to be congratulated.

You may be sure that the present aged president of the American Telephone will never be in Westinghouse's predicament.

I would not be surprised should some of the money sharks hold him up to Mr. Westinghouse as a proper example.

We may expect promotion for Mr. Vail.

For years, employers went about the Western Electric factory and urged men to buy stock.

Most of these men went without necessities to pay for paper in the coveted plant.

The Western Electric Co. has a capital stock of $15,000,000, and it has assets of $46,000,000 and a value of $60,000,000.

One day the stockholders got notice that they could trade one share of this coveted Western Electric stock for $250 worth of bonds par value.

It was intimated that they had better trade because it would be their last chance.

Furthermore, if they did not trade, a new job would be eminently fitting.

Well, after a man is within a few years of an alleged pension fund, he hates to seek a new job.

So most of the employes made the trade, selling $400 worth of value for $250.

And here is the argument.

As one man said: "The Bell people made the Western Electric Co., and they are entitled to it."

Anyway, Mr. Vail will get a medal from the sharks because his brand of humanity in the Western Electric matter will apparently make him a "good business man."

It must be pretty hard on even a crowned head to contemplate the long row of sufferers that pass so stealthily through his dreams.

A man near old age and second childhood should make his peace with God and not with a bunch of financial sharks.

That might apply to the aged man who is making the Bell company a factor in the stock market.

Or possibly he is serving other interests.

"We need the money" is the cry of the powerful financial sharks.

They have large and expensive families and they must have luxuries.

The public should be satisfied with the bones.

But, turning back to the idea of the Bell making the Western Electric Co.

That is a huge joke.

As a matter of fact, the Western Electric Co. made the Bell.

Did you ever run into some of the Bell engineering of 1898 or 1900?

Well, it would make you laugh.

The Western Electric Co. developed every phase of Bell practice except possibly their transmitter and receiver.

Those who try to talk over Bell lines, say from Chicago to Grand Rapids, or some other point, easily know that Bell transmission is shameful.

And it would worry any other concern on earth if it had to contend with this old Bell apparatus.

Besides, the Western Electric Co. is a corporation.

Of course a lawless corporation would calmly appropriate 30,000 shares, if no one kicked.

Lots of Western Electric Co. stock is held by Chicago financial men.

Either the Bell has taken care of them or they are a pretty timid lot of chumps.

The bankers of this country pretend to guard the interests of the country.

With a cry of "Stop Thief" they grabbed the automobile dealer.

That act will not help anybody.

Why can't the banks get wise, and demand better treatment for employes?

Anything that robs employes is doubly wrong.

It hurts business.

It makes socialism.

I mean a destructive thing that calls itself socialism.

True socialism is the haven to which the country is drifting for no other reason than sheer self-defense.

Cheating and suing employes is a quick route to the mob spirit.

When that French noble ran over the little girl, little did he know that Madam Lefarge knitted his name into the shawl of future wrath.

The madam saw to it that this nobleman "got his."

And the so-called "good business men" are piling up disaster upon disaster.

But they don't know it.

I am not a socialist nor do I believe in any destructive force.

I do not believe that any man is infallible, nor any group of men.

We are in a banking age.

We are controlled by bankers.

They have stolen in upon us.

Bankers are not good business men as a rule.

Let a banker get just a little bit out of the banking tradition, and some smooth rascal skins him every time.

No chain is stronger than its weakest link.

No bank is stronger than its weakest executive.

A manufacturer has to speculate.

George Westinghouse speculated when he brought in a single-phase trolley system.

He speculated when he started to develop air brakes.

But he is "a poor business man."

A poor business man because he interceded for a few hundred employes who crossed the line in a crisis and pledged their jewels.

It is shameful.

It is a bad blot on our financial system.

The bankers must recognize humanity.

A contract is a contract, yet the spirit of the contract should be fully considered.

I am sure that the Merchants Loan & Trust Co. would not willingly act as agent for a pirate.

Yet it acted as trustee in the Bell-Western Electric trade.

To the bankers it was a fine deal.

But they helped to make some bitter enemies to the present system.

If the banks are to succeed in holding control of the country they had better act more prudently and at least inspire confidence.

Do the banks know whether the directors of the Bell direct or merely play as directors?

Do the directors realize that their president and the policy he represents is resulting in fear and confusion?

If they would get busy, they would realize the necessity of demanding a resignation.

If they were business men they would call for Thayer's resignation from the Western Electric Co. and elect some one who knows the business from the ground up and who will pay some attention to it because he is interested.

With the Westinghouse deal and the various deals pulled off by the Vail administration during the past three years, it looks as if the financial world has not improved since the Vandals sacked Rome.

MORAL: After me, the deluge.

THE VILLAGE BLACKSMITH.

By Leonard Young.

I.

Under a spreading chestnut tree
The village smithy stands,
The smith, a mighty man is he,
Who scarcely understands
That no matter how hard he may work
He can't supply demands.

II.

He used to shoe the prancing steed
And mend the broken plow;
But that good time is gone; indeed
You would not know him now—
For he purchased the telephone exchange;
Please note his wrinkled brow.

III.

Week in, week out, from morn till night
You can see him on the go;
For he tries and tries with all his might
To keep his plant just so;
But the frisky lightning is on the job,
And the winds that rudely blow.

IV.

And children coming home from school
Look up as he climbs a pole;
They love to see his faultless(?) form
Along the wayside roll;
He can't quite master those pesky "hooks,"
And they make him look so droll.

V.

He works on Sunday just the same
As any other day,
By fixing cords, and drops, and jacks,
He whiles the hours away;
If his switchboard is kept up in shape
He has no time for play.

VI.

Toiling, but never sorrowing
His cheery way he goes,
He finds he likes the business,
And the liking on him grows:
For the good things in his busy life
Make up for the little woes.

SIZE YOURSELF UP.

You say that the world's misused you,
That everything goes dead wrong;
That the right is not triumphant,
That the weak bow to the strong.
Look up, oh, despairing brother,
Why take such a morbid view?
Don't blame the world for your troubles,
It isn't the world—it's you!

You say that the world oppresses,
That it never will treat you square;
That evil and vice are rampant,
That misery's everywhere.
You argue you have no chances
Of working your passage through;
Did you ever stop to consider?
It isn't the world—it's you!

You tell me the world is fickle,
And wicked and harsh and stern;
That everything's set against you,
No matter which way you turn.
But why be so pessimistic?
Get wise to my timely cue;
Don't growl at the world, my brother;
It isn't the world—it's you!

—Exchange.

Telephone Finances

Ohio Company Growing From $1,000 to $75,000, Pays Good Dividends Regularly.

The plant of the Madison Telephone Company of Geneva, Ohio, is valued at $29,600, and has paid 6 per cent dividends regularly. The company, when organized, was capitalized at $1,000, but the business demanded extensions which necessitated the increase in the capitalization, and it was first raised to $10,000 and later to $75,000. No bonds have been issued whatever.

The company operates exchanges in Geneva and Madison, Ohio, in a territory having a population of 5,000 people. It gives service to 110 subscribers for business service, 580 residence subscribers, 65 rural subscribers on its own lines, and 600 rural suscribers on connecting lines. The rates for its service are $1.50 per month for business service, $1 per month for residence, $1.25 per month for rural service. It owns about thirty miles of toll line.

The switchboard equipment was installed about seven years ago.

Officers of the company are: C. W. Devoe, of Conneaut, president; C. S. Fenton, Cleveland, vice president; E. O. Fitch, Kinsman, and E. E. Howes, Geneva, treasurer and general manager.

The Keystone's Annual Report

The annual report of the Keystone Telephone Company, of Philadelphia, Pa., for the year ending June 30, 1910, has just been issued. It shows an increase of 4.9 per cent in the gross earnings over those of the preceding year, and the net profit for the year amounts to $232,409. The accuracy of the accounts are certified to by Patterson, Teele & Dennis. The report in full follows:

To the Stockholders and Bondholders of the Keystone Telephone Company of Philadelphia:

In presenting this, the fifth annual report of the Company under the present management, the policy heretofore established of treating the Keystone Telephone Company of Philadelphia and the companies owned by it as one property has been followed.

The property consists of the Keystone Telephone Company of Philadelphia, which holds a perpetual charter from the State of Pennsylvania, and a perpetual franchise from the City of Philadelphia; also perpetual franchises in thirty-eight boroughs and townships in Delaware, Montgomery and Bucks Counties in the State of Pennsylvania; and the Eastern Telephone and Telegraph Company, which holds unrestricted franchises in the Cities of Camden, Gloucester, Woodbury, Cape May, Merchantville, and all other towns in the counties of Camden, Gloucester and Cape May in the State of New Jersey, and also controls the Camden & Atlantic Telephone Company through ownership of a majority of its capital stock.

Improvements: It has not been necessary to acquire any additional real estate or switchboard capacity during the past year. Additional conduits and manholes have been constructed, however, and considerable additional cable has been laid. The number of stations in operation has been increased approximately 6 per cent. Contracts for service have been secured from a number of large industrial institutions, and in many cases service with the Company has been increased by present subscribers.

Maintenance: While the maintenance charges of the Keystone may appear to be high, when compared with those of other Companies, it is due to the liberal policy of the Company in sparing no expense to keep its equipment up to the highest standard.

Reserve Fund: Accumulated reserve on October 31, 1909, aggregated $500,000, and being considered ample for all purposes was discontinued at that time.

Earnings: For the convenience of comparison, there is given below comparative statements of the earnings of the Combined Companies for the two fiscal years, 1909 and 1910:

COMPARATIVE EARNINGS AND EXPENSES.

	1910	1909	Increase	Increase Per Cent.
Gross Earnings	$1,126,030.48	$1,073,462.15	$52,568.33	4.90
Operating and Maintenance Charges including Taxes and Provisions for Doubtful Accounts	558,078.62	531,008.75	27,069.87	5.08
Balance Available for Interest and Reserve, Etc.	$567,951.86	$542,453.40	$25,498.46	4.70
Reserve for Renewals	32,787.51	100,000.00	*67,212.49	*67.21
Interest Charges	302,755.26	312,307.78	* 9,552.52	*3.06
Net Profit for Year	$232,409.09	$130,145.62	$102,263.47	78.58

*Decrease.

In Conclusion: It can be stated that it is fair to presume that the percentage of increases in the Company's business will be greater during the present year than it was during the past year. We are securing a very desirable and substantial class of new subscribers.

The efficient services of officers and employees are acknowleged with pleasure. N. T. Folwell, President.

COMBINED BALANCE SHEET OF THE KEYSTONE TELEPHONE CO. OF PHILADELPHIA, THE KEYSTONE TELEPHONE CO. (OF NEW JERSEY), AND THE EASTERN TELEPHONE & TELEGRAPH CO. AT JUNE 30, 1910.

Assets.

Cost of Property, including stocks	$13,937,571.29
K. T. Co., Treasury Bonds	81,090.00
Materials and Supplies on hand	82,083.08
Cash at Banks and on hand	143,476.98
Accounts Receivable	152,396.76
Renewal Reserve Fund	66,441.09
Accruals, Etc.	17,228.95
Suspense Account Est. of Fisk & Robinson	181,095.66
Total Assets	$14,661,383.81

Liabilities.

First Mortgage 5% Bonds, issued by the Keystone Telephone Company of Philadelphia	$ 5,525,000.00
First Mortgage 6% Collateral Trust Bonds issued by the Keystone Telephone Company of Philadelphia	180,000.00
First Mortgage 5% Bonds issued by the Eastern Telephone and Telegraph Company	250,000.00
Bond Interest, Notes, Accounts Payable, Reserves and other Current Liabilities	411,223.73
Total Liabilities	$ 6,366,223.73
Renewal Reserve	500,000.00
Capital Stock Issued:	
6% Preferred by the Keystone Telephone Company of New Jersey	1,936,850.00
Common by the Keystone Telephone Company of New Jersey	5,000,000.00
Surplus	858,310.08
	$14,661,383.81

COMBINED PROFIT AND LOSS ACCOUNT.

Gross Earnings		$1,126,030.48
Operating and Maintenance Charges, including Taxes and Provisions for Doubtful Accounts		558,078.62
Balance Available for Interest and Reserve		$ 567,951.86
Less:		
Reserves for Renewals	$ 32,787.51	
Interest Charges	302,755.26	335,542.77
Net Profit for the Year		$ 232,409.09

The Directors are: Marcus Beebe, Boston, Mass.. John 1 Bishop, George Burnham, Jr., Percival E. Foerderer, N. T. Folwell, Clarence L. Harper, James Collins Jones, Michael Murphy and C. E. Wilson, all of Philadelphia, and Heulings Lippincott, Camden, N. J.

The officers are: Nathan T. Folwell, president; James Collins Jones, vice-president; William W. Wharton, secretary and treasurer; C. E. Wilson, general manager.

Letters on Practical Subjects

Pole Setting.

One of the essentials of good line building is the proper setting of poles. Unless this part of the construction work is performed with judgment and care, it will be only a matter of a short time before the line will show evidence of careless work; instead of a regular alignment, pleasing to the eye and forming a substantial support for the wires, the poles will present an irregular, ragged, zig-zag appearance.

When a pole is set it should be lined and braced in its proper position and held so until at least two-thirds of the filling and tamping are completed. The holes should be as nearly round as possible, allowing of course for any deformities of the pole below the ground line. If the holes are properly lined in the process of digging the poles can be placed in the centers, leaving an equal amount of filling on every side. Then if the tamping is properly done, even to the last shovelful of filling, the line is very likely to retain a regular alignment under ordinary conditions.

When a pole is set against or near the wall of a hole, tamping cannot be properly and evenly done, and the pole will have a tendency to lean toward the untamped side at slight provocation.

To incline a pole as little as eight inches at the top throws the center of gravity too far to one side, and adds materially to the strain on pole and pins.

Chicago. H. P. Fairman.

Shot With a Squirt Gun.

I have often heard of a troubleman being called a "bug" hunter, but this is the first experience I ever had in finding the "bug" part.

The wire chief gave me a trouble ticket on the telephone in Blank's livery stable as poor transmission. The telephone didn't talk up well, and I noticed that the mouthpiece seemed to be covered with oil. Taking it out to wipe it dry I saw that the diaphragm was also oily.

After taking the transmitter apart, I saw, to my surprise, about four generations of bed bugs dead between the diaphragm and face of the transmitter.

After burying the dead and cleaning the transmitter the telephone talked fine. The liveryman said he had seen them in the mouthpiece, and put the oil in to kill them. It did. But as I had a clue, I followed it up by opening the telephone.

There, in the hook-switch and every corner, and all over the coil, condenser and ringer, were bugs and when I opened the receiver it rained bugs. I called for the oil can and from the amount of oil I used that telephone ought to work slick for a year.

Steubenville, O. A. B. Preble.

A Growing Independent Property in Maine is Described by Its Manager

The Somerset Farmers' Co-operative Telephone Company, which covers practically all Somerset County, Maine, has been in existence since January, 1904. It reaches southward to the border of Kennebec County, which lies next south of Somerset; it could not very well extend into Kennebec county because its incorporation certificate covered Somerset county only. Two years ago a new company was organized by the manager of the Somerset company and by F. E. and E. A. Webster, of Norridgewock. The new company was called the Kennebec Farm and City Telephone Company and was intended to supplement the Somerset company by extending into Kennebec County.

The Kennebec Farm and City Telephone Company has an exchange at Clinton on the east side of the Kennebec river and another at Oakland, on the west side of the Kennebec. Last year a pay station only was established at Waterville, the most important railroad center in the state, and this summer we have opened a small exchange at Waterville, with a trunk line from the Somerset company by way of Norridgewock and Oakland to Waterville.

The town of Sidney, which lies west from Waterville, has three farm lines running into the Oakland exchange. The town of Fairfield, which lies just north of Waterville, in Somerset county, is covered with the lines of the Somerset Farmers' company and these Fairfield lines will at once be built into Waterville, a distance of three miles, so that the Fairfield lines will be switched at Waterville. Thus it is the purpose of the Kennebec company to move gradually southward from Somerset County, into Kennebec County, leaving no gaps undeveloped between.

Both the Somerset and the Kennebec companies are co-operative. No large Independent system is left in Maine, since the Northeastern was sold out, not long since, to the Bell company, by reason of the bonds being defaulted.

The Somerset company never had a bond issue in excess of one thousand dollars and now has only four hundred dollars in bonds outstanding. It has more than one thousand telephones in operation. Its capital is elastic, because each new neighborhood into which we come raises the money with which to build its lines. The New England company's emissaries have repeatedly attempted to get the company into a branch line contract, by sittings with the manager and with the board of directors, but up to date they have not been able to make any impression. Just before our last annual meeting the Maine Telephone Company, which is the local Bell branch for competing territory, mailed a circular to all our subscribers, setting forth the advantages of a connection with their lines. It had no effect in their favor.

Our companies connect also with the Franklin County Farmers' Co-operative Telephone Company, which, since the demise of the Northeastern, has covered most of Franklin County. Thus Somerset, Franklin and Kennebec counties are firmly knitted together with Independent telephone lines which are constantly extending.

When a neighborhood decides to take our line, they come along quickly. To illustrate:

The manager of the Somerset company, on August 5 or 6 mailed a subscription paper to L. D. Mathews, a boot and shoe dealer at Brighton, a small country village in Somerset county, near Athens. On August 8 the manager received back from Mr. Mathews the following letter:

Brighton, Maine, Aug. 8, 1910.

Somerset Farmers' Telephone Co.,
Norridgewock, Maine.

Gentlemen: I received your paper of agreement to buy shares in your company yesterday and I already have fifteen names; we are sure to have it and would like to have the survey made so we can be stringing the poles. Also send your petition to the assessors for right to set them.

Yours respectfully, L. D. Mathews.

P. S. Have another name since I wrote the within.

The name of the company indicates that we cover farm territory, but we also cover all the villages large and small in the county. We had our hardest struggle to get trunk lines, without getting in debt, but we finally did. We are now well equipped with grounded trunk lines from village to village, for seventy-five miles up and down the Kennebec river from the Forks to Waterville and easterly and westerly from Franklin county to Pittsfield. We are making our trunk lines metallic as fast as we can raise the money. Already they are metal-

lic from Skowhegan, the county seat of Somerset county, to Norridgewock five miles up the river and from Norridgewock to Madison eight miles further up river and to North Anson, four miles above Madison. All the lines in Waterville are metallic.

No stockholder in either company can hold more than two shares of stock. No stockholder can vote by proxy. While a small bond issue is allowable, no larger bond issue has been or will be made, so that with ordinary, fair kind of management, no financial distress ever need overtake the companies.

If a good Independent trunk line up across Maine could be built, there could be some money earned from it in the Independent business. Maine people are slow to invest in Independent telephone securities and so Maine capital cannot now be induced to build such a trunk line. However, the mutuals will one day form the basis for a permanent trunk line system, if nothing happens.

The writer has received and wishes hereby to acknowledge great assistance in the telephone business from TELEPHONY and from its directory and has been frequently encouraged to better efforts in the business by reason of the firm stand uniformly taken by that publication for the interests of the Independents as opposed to the Bell.

Norridgewock, Maine. Frank L. Ames.
Manager Somerset Farmers' and of Kennebec Farm and City Telephone Co.

Grouping of Magnets in Generator.

While making a tour over the state of Minnesota, looking over the general needs of the rural telephone lines, I found many very simple things which are yet continually puzzling the young rural troublemen. Having but a very limited knowledge of these principles of electricity and magnetism pertaining to telephone work, they sometimes cause themselves great loss of time, and incur unnecessary expense in attempting to remedy the troubles.

One man who had operated an exchange about a year showed me a four-bar generator which was new. When I tested it I found the windings unbroken, but still it would generate no current.

He said that it refused to work one day, and he brought it in and took it all apart to see if anything was wrong. Having had little experience in the work, he naturally took it apart much more than was necessary to find the trouble. Finding a connection open at the end of the armature winding, he fixed it, and then put the generator together, but still it would not generate current, so when I came along he showed it to me. I could see nothing from the looks that was wrong, but the trouble was not in the looks. I asked him how much he took it apart, and he answered, "All apart." The trouble was simple enough. He could not tell from their appearance which way the bar magnets

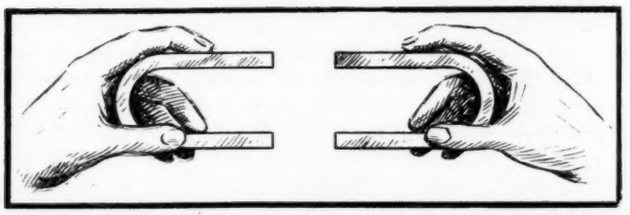


Fig. 1. When Generator Is to Be Reassembled Magnets Brought Together in This Way Should Repel Each Other. Then Fold Over as in Fig. 2.

were to be placed and thought it made no difference, but he had reversed two of them, which, of course, opposed the other two, and neutralized the magnetism. Therefore he got no current.

To be sure that magnets are placed right when putting the generator together, take a magnet in each hand as shown in Fig. 1. As you approach the magnets to each other if they repel each other and do not draw each other the positive poles are together. If they draw each other, reverse one, so that the two repel each other. After holding them in this position, close them together just as you would close a book. Do so with all four bars and then

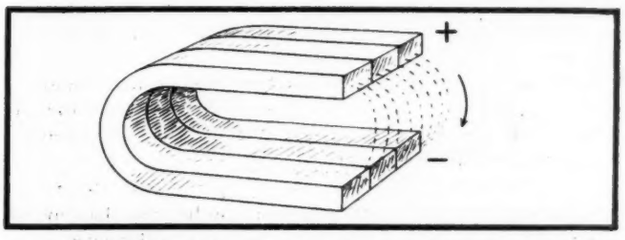


Fig. 2. Assembled Magnets Should Have Like Poles Together So That All Lines of Magnetic Force Will Have Same Direction.

mount them as grouped in this and your generator will work all right.

When all put together the magnets should be like Fig. 2, with all the magnetic lines of force going in the same direction.

St. Paul, Minn. H. L. Wood.

Truthfulness a Big Factor in Success.

When Mr. Belvidere Brooks was made general manager of the entire Western Union Telegraph Company's system the other day, some one asked him by what secret he had been able in forty years to rise to that position from being a messenger boy of eleven in the telegraph office of an obscure Texas town, says "The Independent." He replied that it might have been luck, for he could think of nothing else except this:

"The only thing I ever figured out as having been continually with me since the first day I became a messenger boy may be termed a constant responsibility to my employers, a knowledge that my time was theirs, and that their interests were my interests. That has been my one thought. Another factor which maybe has had an influence on my life is that I have always told the truth. It takes a mighty smart man to be a liar."

That is explanation enough—faithfulness and truthfulness plus brains. He had not been a messenger boy more than six months before he was ticking off the messages. The boy was father of the man.

Telephones for Turkey.

It is reported from Constantinople that the telephone concession for that district has at last been definitely settled, and that the contract will be signed in Paris forthwith by the Minister of Finance. Turkey will thus lose the unique position she now occupies as the only European country which is entirely without this system of communication. The concession is for forty years, and the government has the right of purchase after ten years. The installation must be finished within two years. There has been considerable competition for this concession, for it is naturally felt that the holders will have a big advantage when the question of its extension to the other trading centers has to be decided. It is thought that Salonica, Smyrna and Beyrout will very shortly follow Constantinople's lead.

Iowa Railroad Commission Orders Telephone Installed in Station.

The Iowa State Board of Railroad Commissioners has ordered the Minneapolis & St. Louis railroad to put in a telephone in the depot at Paton, Iowa, immediately. The action was taken as a result of a complaint that was filed by residents of Patos.

The Treatment of Depreciation

Rulings on this subject made by a number of supervisory bodies are compared and discussed by Mr. Frank R. Ford, of Ford, Bacon & Davis, in a paper presented at the mid-year conference of the American Street and Interurban Railway Association. The following abstracts from this paper will doubtless interest telephone officials:

Each street railway corporation* in the United States is today is possession of a blank form of the Internal Revenue Bureau, one line of which, under the heading "deductions" from gross income, is as follows:

"5-b. Total amount of depreciation Jan. 1 to Dec. 31, $——."

A footnote states: "The deductions authorized shall include all expense items under the various heads acknowledged as liabilities by the corporation making the return and entered as such on its books from Jan. 1 to Dec. 31 of the year for which the return is made. This form properly filled out and executed must be in the hands of the Collector of Internal Revenue for the district in which is located the principal office of the corporation making the return on or before March 1."

Therefore, the subject of depreciation has been removed from the realm of theory. Heretofore a few states have required returns to be made on this subject through their commissions having jurisdiction, notably the Public Service Commissions of New York and Wisconsin. The Interstate Commerce Commission has required a depreciation charge only by companies the greater part of whose operated mileage is in states where this is required.

Therefore, street railway companies must now decide whether for the year ended Dec. 31, 1909, they will refuse to acknowledge as a liability the amount of current depreciation and in that event possibly cut themselves off from claiming depreciation for this period as a part of the cost of operation in any case of proposed rate regulation, imposition of additional service or limitations of rate of return on capital; or, on the other hand, by adopting a reasonable plan for charging depreciation offer proof that this is a conservatively managed business.

Rulings of Public Authorities.

As to what this charge for depreciation should include, there is some divergence in the rulings of the authorities in questions, as follows:

The law under which the Wisconsin commission is working seems to be tempered with common sense, recognizing that a difference exists between theory and practice. This law provides that: "Every public utility shall carry a proper and adequate depreciation account whenever the commission, after investigation, shall determine that such depreciation can be reasonably required" * * * and that "the commission shall provide for such depreciation in fixing the rates, tolls and charges to be paid by the public."

Under the uniform classification of accounts of the Wisconsin commission it is provided that: "Every electric railway shall carry a proper and adequate depreciation reserve to cover the full replacement of all tangible capital in service. There shall be opened a depreciation account, to which shall be charged monthly, crediting the depreciation reserve, an amount equal to one-twelfth of the estimated annual depreciation of the tangible capital in service of the railway, or as near that amount as the finances of the property will permit."

As tangible property comprises all land and its improvements, it is conceivable that the intent of the commission is to allow for the appreciation of value of real estate, which seems to be contrary to the orders of the other commissions.

The Bureau of United States Internal Revenue, which has in charge the collection of the new corporation tax, apparently treats the subject of depreciation as differentiated between complete depreciation or abandonment or destruction due to obsolescence, inadequacy, age, action of the elements or otherwise, and incomplete or partial depreciation due to wear and tear and obsolescence.

Complete depreciation, unless already charged out under the depreciation account or the maintenance accounts, is provided for apparently under one of the deductions from gross income as follows:

"5 (a). Total amount of loss sustained Jan. 1 to Dec. 31, &——." The definition covering this item is as follows:

"Losses.—The deduction for losses must be in respect of losses actually sustained during the year and not compensated by insurance or otherwise. It must be based upon the difference between the cost value and salvage value of the property or assets, including in the latter value such amount, if any, as has in current or previous years been set aside and deducted from gross income by way of depreciation as defined in the following section and not been paid out in making good such depreciation."

The ruling on "depreciation" provides for the year's accrued or incomplete depreciation due to exhaustion, wear and tear or obsolescence. Complete depreciation due to exhaustion and wear and tear is apparently to be charged under the heading of "expense of maintenance and operation," and complete depreciation due to obsolescence, etc., under the above deduction for losses unless formerly provided for by the depreciation fund. This ruling is as follows:

"Depreciation.—The deduction for depreciation should be the estimated amount of the loss, accrued during the year to which the return relates, in the value of the property in respect of which such deduction is claimed that arises from exhaustion, wear and tear, or obsolescence out of the uses to which the property is put, and which loss has not been made good by payments for ordinary maintenance and repairs deducted under the heading of expenses of maintenance and operation or in the ascertainment of gross income. This estimate should be formed upon the assumed life of the property, its cost value, and its use. Expenses paid in any one year in making good exhaustion, wear and tear, or obsolescence in respect to which any deduction for depreciation is claimed must not be included in the deduction for expense of maintenance and operation of the property or in the ascertainment of gross income, but must be made out of accumulative allowances deducted for depreciation in current and previous years."

This ruling seems to be carefully drawn, although I doubt the propriety or practicability of making an allowance for incomplete or accrued depreciation due to the so-called obsolescence or inadequacy. In the first place, there is no adequate standard for gaging the probable life of any part of the construction or equipment of a street railway, the discarding of which depends on its becoming obsolete or inadequate. A careful distinction should be made between the useful life of the article in question based upon wear and tear or the action of the elements and the useful life before becoming obsolete or inadequate. Wear and action of the elements are dependent upon service and time; obsolescence and inadequacy are dependent upon changes in the art, which may take place within one year or 50 years. Considering the property as a going concern, an article cannot be said to be 50 per cent obsolete by the use of any present standard; it is either obsolete or not obsolete, 100 per cent obsolete or a proper standard. On the other hand, an article can be said to be 50 per cent worn out either by wear and tear or by the action of the elements.

Furthermore, obsolescence and inadequacy usually occur for business or economic reasons. The new standard will produce more net profits than the old one, even allowing for interest and depreciation on the new standard, together with interest on

*Likewise every telephone company.

the old. If this were not so the old article would not become obsolete. Consequently, from a business standpoint, renewals due to depreciation from obsolescence can be capitalized. In the street railway business the notable examples of obsolescence from a change in the art have been the change from horse to the cable system, and from the cable to electric. From the rates of fare in force it would generally have been impossible to have made these changes out of income, and certainly so with the increased length of ride and use of transfers of today. If a provision had been in force at the time requiring such a change we would probably still be burdened with the older system in the same manner as the city of Edinburgh is today suffering from the operation of its cable system.

From the standpoint of the public, if renewal or change of the whole system due to obsolescence before wearing out has to be charged to income, either the persent rates of fare must be raised or the replacement cannot be made. It would appear, therefore, that the public's interest is thus served by capitalizing such charges, if otherwise not financially practicable.

The very rulings of the public service commissions that obsolescence shall be charged to income has already had the effect of increasing largely the useful life of all physical property and of delaying changes in the art.

Three different policies of providing for the upkeep of physical property out of income may be followed:

1. Charging out when the expenditure is made.
2. Charging out over a period after expenditure, and
3. Accruing in advance of need.

I believe that a combination of these three methods will produce the most satisfactory results and will correspond with the best steam railroad practice of the past 25 years.

Apart from the technicalities of accounting, I think that depreciation should be divided and charged as follows:

1. Complete depreciation.
   a. That due to wear and tear should be charged to proper maintenance accounts.
   b. That due to obsolescence, inadequacy, age or destruction by any cause should be written off from current income or from past accumulations of profit and loss account, if financially practicable, or, if not, such obsolescence or inadequacy should be capitalized.
2. Incomplete depreciation.
   a. That due to wear and tear, if likely to fall due in large amounts at irregular intervals, should be provided for by a depreciation fund.

From a practical standpoint the method which I have used in working out this problem recently for a street railway property operating both on paved streets and private right-of-way, has been as follows, referring to the balance sheet accounts of the physical property:

Right-of-Way Real Estate.—Appreciation over original cost is estimated to provide partly for depreciation of the intangible property included in the balance sheet.

Track and Roadway.—Renewal of ties, special work and paving is charged direct to maintenance. To provide for the renewal of rails, including the labor, ballast, joints, ties and paving occasioned by such renewal, there is charged annually to a depreciation fund such an amount as will provide the cost of the renewal when it is made, the remaining life of each section of track construction being estimated.

Electric Line.—Renewal of poles, wire and fixtures is made through maintenance.

Real Estate Used in Operation of Road.—Appreciation over original cost it is estimated will more than provide for depreciation on buildings.

Buildings.—Repairs and renewals are charged to maintenance. Depreciation due to obsolescence or inadequacy will be more than covered usually by appreciation on real estate; if not, upon discarding the building any net depreciation should, where financially practicable, be written off.

Investment Real Estate.—Appreciation is estimated to provide partly for depreciation of intangible property.

Power-Plant Equipment.—Renewal necessitated by water and tear is provided for from maintenance. Any articles retired through age or inadequacy should, where financially practicable, be written off.

Shop Tools and Machinery.—Renewals are made from maintenance. An annual inventory is taken and book values increased or decreased accordingly.

Cars, Including Electrical Equipment.—Physical wear and tear are provided for from maintenance. Any car or class of cars upon being retired should be written off, where finanacially practicable, unless provided for by car equipment trust or other sinking fund.

The depreciation fund should be available in cash when needed. With this in mind, it may be invested in the company's saleable securities and in some cases in additions to property.

The depreciation fund is essentially a financial problem, the solution of which is apparently by law left to the directors of the corporation, as they are empowered to determine the amount of current income to be set aside for working capital and the amount of dividends to be declared. It is questionable if utilities commissions can lawfully impose rules for the charging of depreciation in cases where the physical property is fairly maintained and securities properly issued. I believe that no hard and fast rule can be laid down for charging a fixed amount to such a fund month by month or year by year; the proper amount to be charged should be known, and if in lean years this amount is not laid aside, in prosperous years the deficiency should be made up. It might even be necessary to use this fund for other purposes than renewal of physical property, due to business contingencies unforeseen.

This program, I believe, will provide for the upkeep of the physical property until another change in the system occurs, such as from cable to electric, if it ever does.

For the company mentioned, to which we have applied this policy of charging depreciation, I find that it results in a charge to depreciation fund of about 3 per cent of the gross earnings in addition to charges for renewals in the maintenance account, which, with current repairs, usually average about 10 per cent of the gross earnings, making a total of 13 per cent, to which must be added the amount written off for the abandonment of property due to obsolescence or otherwise, so that the total would probably be 15 per cent of gross earnings. The proper amount to be charged to a depreciation fund varies with every property, and should be carefully estimated as a factor of the physical cost, although it has been here stated, for convenience, as a factor of the gross earnings.

On the other hand, the theoretical depreciation fund arrived at by guessing at obsolescence and assuming a given life for each article of the construction and equipment based on the past 25 years' physical history of horse, cable and electric railways during their development to the present apparently well-settled standards, will involve a charge of usually from 10 per cent to 25 per cent of the gross earnings. Adding to this the current repairs and renewals covered in the usual maintenance accounts, of some 10 per cent of gross earnings additional, the total charge for maintenance, renewals and depreciation will amount to from 20 per cent to 35 per cent or more of the gross earnings. With the present insufficient return upon the capital actually invested in street railway enterprises, it would not be reasonable to expect these corporations to make appropriations for depreciation based upon this theory of obsolescence.

The rights of stockholders as to preservation of original investment and return upon securities are involved in any consideration of depreciation or the return of income into property. Should stockholders, who in early years have taken the risk and have provided for and outlived early losses of operation, be subject to the obligation of providing for wholly theoretical wasting of capital in the future?

Recovering Cancelled and Lost Toll Tickets*

By A. J. Shands

The idea of trying to recover toll tickets that have been considered lost because the called party was not in at the time called, and for various other reasons, is by no means new, but the following up of tickets that have been ordered cancelled by the person placing the call is not being pushed as vigorously by some operators as the results will justify. No doubt operators in all exchanges, large and small, have been instructed to follow up lost and cancelled tickets, and, although in some exchanges this is supervised closely, the manner of doing this and the persistency with which it is to be done, in many exchanges are left entirely to the operators' judgment.

The operators are supposed to follow these calls as closely as their work will permit, and usually are instructed to go over these tickets at times when their attention is not required by new business. In a sense it is only natural that new business should be given the preference, but that does not mean that any uncompleted ticket, even one that has been ordered cancelled, should be laid aside until a time when the operator has no other calls. Under the usual method of following lost calls, the line operator follows up the tickets which would be connected over lines terminating in her position. In most exchanges a ticket not completed by twelve o'clock midnight of the day on which it originated is considered a lost call for that day. These calls are again taken up by this line operator in the morning of the following day, and an attempt made to recover. Here is the point where the effort is not sufficient. If the call cannot be completed the first time an attempt is made it is frequently laid aside as lost entirely. These calls should not be considered as hopelessly lost, but should be taken up by some operator who has nothing else to do at the time, if possible, and she should make further effort to complete them. When she passes them back as lost she should be satisfied that further effort to recover would be useless. All exchanges do not have enough operators to do this, but any long distance exchange that has as many as 400 originating tickets a day should be able to arrange to have some one person devote parts of her day to lost calls exclusively, and in exchanges handling less than this number of originating calls daily, each operator could care for her lost calls without interfering with new business.

Because a call has been ordered cancelled by the calling party upon receiving the first or second unfavorable report is no reason for the operator to cancel the order and class it as lost. These calls should be placed with, and followed the same as every other uncompleted ticket that has been reported on. These calls should be followed diligently on the day they originate, and in almost every case where the called party can be reached the calling party will talk. If he does not wish to talk at that time the usual reason is that he has resorted to some other means of communication. This will at least show to the company's patrons a desire to get parties to whom they wish to speak, if it is possible to do so.

The figures giving percentages of calls lost as shown by different companies, are not always susceptible to comparison, and to understand their meaning one would have to be familiar with the conditions. Where there is a great deal of short haul business the percent of lost calls is likely to be higher, especially if the towns are connected by interurban cars, than it is where the majority of the business is to towns some distance away. The reason for this is largely because the calls are placed for a party in a nearby town and he is found to be out, and the call is later cancelled because the calling party has seen the person with whom he wished to talk. If the calls in any exchange are followed closely on the day they originate, the per cent of lost calls recovered will probably be high

If the operating and trouble departments of an exchange and of different exchanges work together the number of lost calls can be greatly reduced. In cases where a telephone can not be "raised" on an incoming call and the "can't raise" is reported immediately by the operator to the chief operator or supervisor, and she in turn reports it to the trouble department with instructions to report to her at once upon visiting the place, calls may be made good that might be lost if the regular course were followed. Sometimes the telephone is found out of order, or the troubleman, knowing the nature of the report, is frequently able to gain information that will convert a probable lost into a good ticket. If there is no one there to answer the telephone, the operator will know by the report that she is to try the line at frequent intervals. Any information that can be had will have some bearing on whether the call must be lost, or its possible completion. Working together with the trouble department, especially in large systems, will frequently save considerable time on messenger calls. Where the city is divided into trouble districts the wire chief's desk can have a man advise a party at a certain address that he is near without any material loss of time to him, and much more quickly than if a messenger had to be sent from some distant point. These things have been worked out successfully.

In a long distance exchange one position of a toll board was set aside and termed the "lost call" position. The duties of the operator in this position were to devote as much of her time during the day to following up lost calls as was required and not to consider a call lost until she was satisfied that further attempt to recover would be time wasted. The line operators were instructed to pass to this operator, to be followed up, all calls that they could not complete after receiving or giving their first report, this applied to out, in, and through, excepting "leave word" calls, and these also if the operator did not hear from the party within a few hours. The results of this work for a year have been very good, and although some of the figures are large as compared with those of other companies the reasons are satisfactory.

The percentage of originating calls lost is large and this is due to a large amount of short haul business. The average percent of originating calls lost for ten months was 13.15 percent, and the average percent of these recovered was 15.59 percent. It is not customary for a line operator to take up an inward lost ticket for recovery, as each office usually handles its own originating calls, whether good or lost, but this operator was given these tickets, and took them up as well as originating calls. Through tickets were also followed up by this operator. The numbers of inward and through tickets recovered were not figured in percents. However, there were enough of each kind recovered through this operator's efforts to justify a continuation of the work.

The experiences of this operator have been varied with patrons of the company, and more so with the operators of connecting companies. When this work was started it soon became evident to the different connecting operators that more energy was being used in following lost tickets, and quite a few operators took exception to it, claiming it unnecessary and useless. Especially were they strong in their criticism when an inward call (their originating ticket) was up for recovery. The usual claim in this case was, and frequently, still is "That was their

*A paper presented at the convention of the Missouri Independent Telephone Association.

ticket and if their party wanted to talk he would call again." That is logical enough, but a reminder of his call of the previous day, with the information that the company has his party now, will frequently convert a loss into a gain. The greatest difficulties experienced in following up these calls seems to be a lack of co-operation. This sometimes seems to be prompted by indifference. Whether this lack of co-operation is caused by the operators' indifference, or is due to the lack of instruction given them must not be determined here. However, every toll operator should realize that it is the revenue derived from good tickets that makes her position possible, and necessary, and she should in justice to her company and herself do everything possible to make the toll revenue of her office reach the highest possible figure. Close attention to these little details of her work should make her more valuable to her company, and if she does not realize it, or if she does and still makes no attempt to use her knowledge effectively, she has but little to expect. The office manager who has given the lost calls in his exchange but little attention, if any, will find that a little effort in the way of trying to recover these calls will more than repay him.

Some Problems Solved

Queries from Europe.

As a subscriber of TELEPHONY, I hereby take the liberty of asking you about the following:

(1) The common value of the insulating resistance of subscribers' lines in C. B. systems?

(2) The minimum value of the same?

(3) Are there any C. B. systems working with overhead wires to a large extent in your country?

Manufacturing requirements of underground and aerial cables call for an insulation resistance of 500 megohms per mile. Owing to the leak, however, in the cable terminals when the cable is installed, the insulation resistance is considerably decreased. Under average conditions the insulation resistance of a subscriber's loop varies from 30 to 40 megohms per mile.

(2) With a 24 volt battery and a 2,000 ohm line relay, such as is used by the Bell system, the minimum insulation resistance is 30,000 ohms. If, however, earth currents are experienced, a higher insulation resistance would be necessary in order to prevent the operation of the line relay. However, under the above conditions a noisy line would probably result, and there would be a possibility of the supervisory relays in the cords sticking up. By properly adjusting the line and supervisory relays, a line can be operated with an insulation resistance of 30,000 ohms.

(3) There is a tendency now toward an all-cable plant, but there are a few open wire plants working common battery in some of the small towns. The open wire, however, is gradually being replaced by cable. For the most part, however, you will find underground or aerial cables extending from the central office to cable terminals, from which drop wires are taken to the subscribers premises. These drops are either in open wire, with one wire insulated, or in rubber covered, twisted paired wire.

Independent manufacturers in response to an inquiry as to the minimum insulation resistance required for lines attached to their switchboards have furnished the following information:

Kellogg Switchboard & Supply Co.—"The line relay on our regular multiple switchboards is adjusted to pull up through 1,000 ohms and to fall back through 10,000. Therefore the minimum insulation resistance allowable on the line circuit is 10,000 ohms."

Stromberg-Carlson Telephone Mfg. Co.—"The general type of line relay, as manufactured by this company, under average normal adjustment, will operate with about .006 of an ampere. This will allow a minimum resistance of something like 6,000 ohms, between the line and the ground, the central office battery being grounded itself. This is the minimum resistance over which the operation of the relays can be maintained, but will produce a great deal of cross-talk. To overcome this the line and cable insulation should be approximately one megohm as the minimum."

Dean Electric Co.—"The allowable minimum insulation resistance on a common battery subscriber's line, using the Dean type of line relay, is a matter which is entirely dependent on the local conditions. In a well-built plant, we feel safe in allowing a leakage on the subscriber's line equivalent to a resistance of 10,000 ohms. In some cases this might run as high as 15,000 ohms. With poorer construction, a much less resistance can be used, as our relays are readily adjusted with a different tension on the contact springs.

"In a spring contact type of relay, the raising of the normal stationary contact from its stop, when the armature is actuated, requires an additional effort, and this is sufficient to break away the armature with considerable force as soon as the current is disconnected from the winding.

"In a gravity type of relay, the armature when operated is in a position where it will exert its smallest effort in breaking away from the core, this sometimes involves the necessity of placing relays on an angle to insure positive operation. Such matters have to do with the matter of leakage on the subscriber's loop."

Automatic Electric Co.—"In the laboratory we can secure satisfactory connections with as low as a 30,000 ohm leak across the line. In places our operating companies clear up a leak on a line which shows as much as 500,000 ohms, that is half a megohm. There are many lines which have operated successfully with as low as 100,000 to 200,000 ohms leakage, and on cross country trunk lines, if the operators nurse the call by retarding the dial they can secure service with as low as a 30,000 ohm leak. This, however, is not considered proper working. To sum it up it may be said that we require about 400,000 ohms or more for satisfactory service."

Low Resistance Drop Robs Line.

In your issue of April 23rd (Vol. 19, No. 17) on page 516 is an article headed, "Trouble in Ringing Central." In reply you state that a lower resistance drop will not help. I wish to differ from you in this. Theoretically, it would not, but with the conditions as a grounded circuit will help the trouble, and probably cure it entirely.

We have about twenty-five grounded farmers' line circuits, and at one time had this trouble with a few long lines. Central drops were 1,000 ohm, and telephones 1,600 ohm. For an experiment we put the line in trouble—10 telephones with 18 miles of new No. 12BB on a 100-ohm drop. The telephones being nearly all at the end—we bunch all telephones on the end of a line where possible—could easily call each other, and ring central fine. Central's drop being out of the circuit with the plug in, can call any party easily. This with a new line, sleeve joints, that was not over 650 ohm, should work better on an old line as described. We now have every subscriber on a 100-ohm drop, and not a subscriber has to ring central but once.

W. T. WAY, Houston, Tex.

The statement that a lower resistance drop would not help was made as applied to that case alone, not as a general truth. In the case cited the proper solution was to make the line right; this done, the drop would take care of itself. It is well known to the writer that a low resistance drop is more certain to ring, but is a poor remedy for an old high resistance line.

The truth of the matter is as follows: The low resistance drop secures its more reliable performance at the expense of the other apparatus bridged across the line.

or from line to ground in the case of a ground return circuit. If all bells and drops are of equal reactance and impedance and the line is of negligible resistance, then all will receive equal current when ringing current is applied. Owing to the resistance of the line the current in each bell is only approximately equal to that of its neighbors, the real value falling off slightly as the bells are farther from the generator which is supplying the current.

If now, we make one bell or drop of lower resistance (and impedance) than the rest it will get more current than the rest and hence will ring more strongly and reliably. But less current will now flow through each of the other bells, so that they will not be as strong or reliable. You may not notice it as long as the line is in good order, but when difficulties occur the standard bells will go out of business first. With a low resistance drop, it is at all times more difficult for subscribers to ring each other, though if they are grouped at the end of a long line they may not notice any difficulty.

The lower resistance bell is especially attractive to those rural subscribers who are required to buy their own telephones. If to a line of 1,600 ohm bells a new station be attached with a 1,000 ohm bell, the latter will tend to ring more strongly than the rest, and the new subscriber will imagine that he has a better telephone. In fact, he should not be allowed to attach the lower resistance instrument on account of its weakening effect on other bells, even though the addition of the one might not be noticed.

Making the Operators' School the Weeding-Out Ground for Unfit Candidates.

By Virginia H. Burgkart.

Every telephone company strives to give the best service and in order to do this the manager and his assistants are constantly on the alert to find a way to improve the system and equipment. But an important part lies with the chief operator. It rests with her to provide a force of operators who will give the best service with the facilities they have.

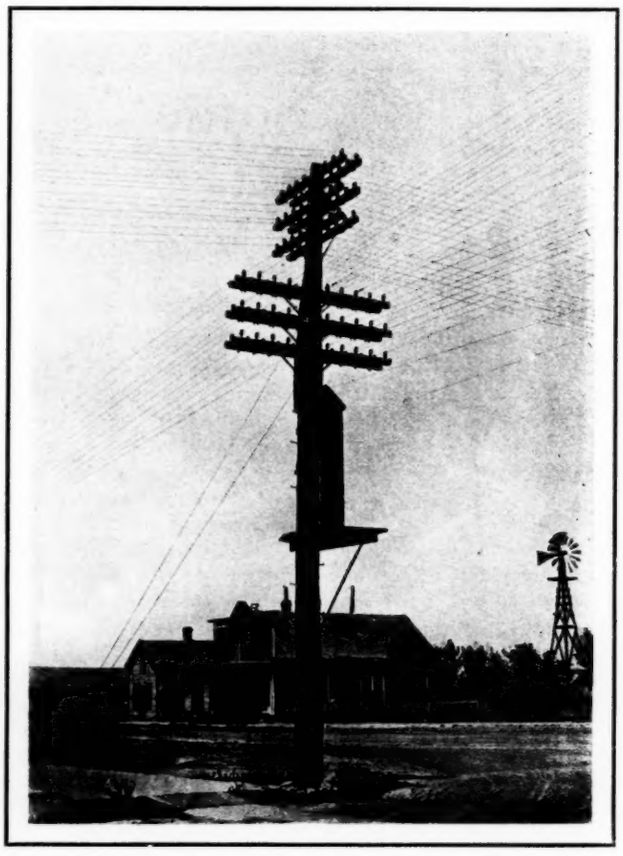
Intelligence is required more than education to make a good operator. Every faculty must be keen, and every sense true. The instructress should study the beginners carefully and any girl found wanting in any of these qualities should be dropped at once. It is a waste of time and money to instruct girls who do not possess the natural qualifications found in good operators, and the absence of these personal characteristics can usually be detected while they are in the school. If a student of this sort is permitted to finish her course and enter the operating room the service will suffer, and she will finally be dismissed.

"Slow but sure" cannot be applied in telephone work as it is important that rapidity be combined with sureness. A girl who is slow learning is bound to make a slow operator, at least for a long time. No company can afford to wait for this operator to acquire speed. A girl who spends from three to four weeks in the school instead of the usual ten days or two weeks will take a year to acquire the skill that the ordinary operator acquires in six months. This operator is a loss to the company, and should have been dropped while in the school.

Activity of body as well as mind is required and both of these are in a measure founded on good health. Any girl whose health is not of the best should not be taken. In all probability she would not be regular in attendance, and after a few months would resign, not being able to stand the work. By picking out all of these girls while they are yet in the school only the best students get into the operating room and the service is not lowered. Room is also made in the school for other applicants who may make good operators.

Good Construction at Scott City, Kansas.

Lincon Newsom, proprietor of the Scott City Telephone Exchange, has been putting in some new construction work which should command the favorable attention of any of his neighbors who care to drop in and pay him a visit. The accompanying photograph shows the pole nearest the central office, with its cable box. The large building, with trees to the right, is the central office building. Underground cable runs from the office to the



Junction of the Underground and Open Wire of the Scott City Telephone Exchange.

pole. Mr. Newsom is giving Scott City service from a modern selective signaling exchange equipment, and reports that subscribers are well satisfied, as they certainly ought to be. There are 250 telephones connected to the system at present.

Telephone Companies Doing an Interstate Business Now Under Jurisdiction of Interstate Commerce Commission.

August 18 the new law, enacted by Congress last June, placing telephone and telegraph companies doing an interstate business under the jurisdiction of the Interstate Commerce Commission became effective. The law requires that all of these companies file and publish their schedules of rates, but so far none of the companies in Ohio have done so.

The only action taken under the new law by the telephone and telegraph companies is doing away with the franking privileges and free telephone service. The companies still carry in their directories the statement that all rates are subject to change at any time.

General Manager Johnston of the United States Telephone Company said he did not know what changes would be made by the new law. The future is simply a matter of conjecture.

The Fight Upon Telephone Securities*

By J. C. Kelsey

It was not very many years ago, that our forefathers made their living with an axe. There was little or no investing public, and such a house as J. P. Morgan & Co. would have starved to death within the Tanner limit of forty days.

The Civil War changed the financial map!

For four long, weary and bloody years Eastern people sold hay at $40 a ton and wheat at $3.00 a bushel to the benign and beneficent Government.

So a great many people had money, and had to seek investment for it. Cities began to develop, and their old volunteer fire engines were sent to the scrap heap because they put in waterworks. The day of simple life was past, and municipal bonds began to come into being. Every city in America gladly jumped into debt.

I can imagine that, in early days, the banks and security buyers began to hold up their noses at certain western paper, particularly at Kansas towns. Now they buy up any old town bonds, and sell them at a premium. The financial man has more freaks and foibles than an actor. He prides and plumes himself as a pigeon, and has created his own position of importance. Wall Street, by sheerest gall, still insists upon being referee of investments. There never was a more one-sided institution.

What the Wall Street crowd do not know they say is not worth knowing. But people are getting wise to their narrow ignorance. This impediment in their vision will prove to be the salvation of telephone securities.

Ten or fifteen years ago, a trolley bond was hailed as an awful example. A trolley company could not possibly survive in a competition with a steam railroad; people would not travel on a jerky old trolley car at all; they argued in this wise for years.

And the trolley people had their troubles, but kept on at work, sawing wood and extending tracks. A vigorous fight against them went on merrily, and many long-whiskered financial authorities laboriously wrote articles in financial papers, stating reasons why people should not buy trolley bonds and stocks. But no one pays any attention to these quacks, anyway.

In your day and mine, a new security sprang into existence. It was a telephone security, based on the Independent telephone.

You have seen the dog chasing some harmless bird or animal in a leisurely fashion, when a rabbit crossed his path. You know how the dog suddenly became interested, and his baying could be heard a mile.

Well, when Independent telephone securities crossed the path of the great financial dog, he lost sight of the trolley bond, and began filling the press with his whines, bays and objections to telephone securities.

In his own shortness of memory, he began to brag on trolley securities, and they became a standard in New York circles.

Aided and abetted by that notoriously short-sighted institution, who profess to love the public so dearly, the financial press and the Bell press bureau got busy and worked night and day upon the iniquity of an Independent telephone bond. But Independent plants waxed strong and numerous. It was proved that New York aid is only sentimental. They accused Independent telephone securities of being weak and poor, because of the lack of knowledge on part of the operators; because of the neglect of principles of depreciation and even of current repair.

We have the A. T. & T. Company's own admission that the reserves increased $3,000,000 in 1909, and they have 3,670,000 stations.

This is about 80 cents per station. You all know that there are numerous Independent companies setting aside all the way from $1.00 to $5.00 per station year in cash.

The fight upon Independent securities has been beneficial because it has made us put our house in order. We are prepared now for any supreme test. But we already have local confidence, which, after all, is the only source of real money.

All the fabrications of the Bell press have been thrown back into their teeth, and they do not make a sound. A new enemy has appeared, which is disturbing the financial whiskers more than any other previous thing.

It is the irrigation bond! It pays 6 per cent. It gives New York holy horrors to think of paying anybody 6 per cent, when they need the 2 per cent or 3 per cent difference so much at home. The people are getting too much, they think. Their true idea is a one per cent bond for the public.

Well, they have opened fire on irrigation, and if you would read "Success" and some other ready-made magazines, you would know that some financial light-weight was peppering at poor, young irrigation with a pop-gun.

But it spells "hope" for telephone securities. With their one-sided vision, they will pursue the irrigation bogie until something else turns up to amuse or irritate them. With their absent-mindedness, they will accept telephone bonds cheerfully.

And, mark me, you will soon see telephone security offerings oversubscribed many times.

The fight has been a bitter one, but it has been a chastening one. The Bell interests are far from being as conservative as the majority of Independent properties, and they know it.

We have prayed long for Wall Street, and we have Morgan in answer to our prayers. Cuyahoga bonds went from $68 to $95, simply because Morgan recognized our legitimacy. That deal may be Bell, but it is working for our best interests.

You in Kansas, are fighting a company that confesses great annual losses. It is extravagantly run, and run for the benefit of the A. T. & T. Co. alone. Nothing disturbs the stream of money sent to Boston or to New York.

Only the minor stockholder suffers.

The behavior of the Bell company in connection with Central Union, Western Telephone, Missouri and Kansas, Western Electric Co., and other wrecks has done more to shake confidence in telephone securities than anything else. Bell officials term the various properties, particularly the Western Electric Co., as "gold bricks." They ought to know.

But the minor stockholder does know—He has been fearfully "stung."

But in spite of internal and external fights, no business on earth is normally so secure and profitable as the telephone business.

*Abstract of a paper presented at the annual convention of the Kansas Independent Telephone Association at Topeka, Kan.

From Judges and Juries

Conducted by A. H. McMillan

Arrested from Stopping Service of Delinquent Subscribers.

Alleging violation of the telephone regulation ordinance of the city of Dallas, Texas, a number of complaints were made against and nine warrants served upon Joseph E. Farnsworth, as vice president and general manager of the Southwestern Telegraph and Telephone Company.

This action came after the telephone company had ordered the severing of the connection of telephones of those subscribers who had failed to pay the July bills for service in advance. The ordinance passed by the commissioners, after initiative action and the adoption of the ordinance in the general election in the city last April, fixes rates, the same as those charged by the company, but specifies that the charge shall be made for the month after service has been rendered, and that a bill for service for any month, if paid within the first ten days of the month succeeding, shall be subject to a discount of 10 per cent.

The validity of the ordinance is being tested in the courts and it is the contention of the city that the law should be enforced until it is declared invalid. The company asserts that the law is inoperative pending a test of its legality.

Act for Determining Reasonableness of Municipal License Fees Constitutional.

Holding that the municipality is but an agency created by the legislature to do its part in maintaining the public policy of the state and accomplishing the ends for which the state itself exists, Judge Head of the Superior Court of Pittsburg, Pa., wrote an important opinion on the appeal of the borough of North Braddock affirming the decree of Common Pleas Court in the matter of the petition of the Pittsburgh & Allegheny Telephone Company.

The proceeding appealed from was begun under the act of April 17, 1905, the appellant declaring the act which is entitled, "An act providing for the determination by the Court of Common Pleas of the proper county of all disputes as to the reasonableness of the amount of license fees between municipal corporations and telegraph, telephone or light or power companies," to be unconstitutional, because the title of the act did not sufficiently indicate the matter contained in the body of the bill. The opinion holds that the title does sufficiently indicate the matter to be within the meaning of the constitutional provision.

"Importing" Values for Assessment Upheld.

In the case of the Postal Telegraph-Cable Company, of Indiana, against the state board of tax commissioners, the circuit court at Indianapolis has upheld the board in considering the business connections of associated companies in other states with the Indiana corporation to arrive at the taxable value of its property. In 1909, the state tax board placed a valuation of $45 a wire mile on the company's property within the state, making an aggregate valuation of $424,764. The board refused to value the property as if it were disassociated from similar property in other states, but considered that the company is completely controlled by the Commercial Cable Company, the greater corporation which controls similar closely associated companies in various states of the union. The Indiana company contended that the tax board had no right to "import" values and add them to the company's property.

According to the company's calculation it should have been valued at only $15 a wire mile, which would have made an aggregate valuation of $141,588. On this ground the company sought to enjoin the state authorities from proceeding to collect the taxes on the proposed basis.

The attorney general had shown during the trial that all of the stock in the Indiana company was practically owned by the Commercial Cable Company, which exercised sole authority over the Indiana company through a deed of trust made to the Farmer's Loan and Trust Company and that the local company was operated by a district superintendent who also directed the affairs of at least two other companies in other states. It was shown that the president and directors of the local company had no control over the money it earned, and that the president of the company did not even know the company owned the wires and poles in this state. "Under such circumstances," the attorney argued, "the law looks through the shadow of the corporate existence of the plaintiff to the real substance behind it." The court found that the plaintiff company was incorporated under the laws of Indiana for the sole purpose of condemning property when necessary; that the state tax board did not disregard the method prescribed by the statute for ascertaining the true value of the property, that the valuation in controversy was valid, and that the plaintiff was not entitled to an injunction.

Suit for Right to Lay Conduits.

The American Telephone and Telegraph Company has brought suit in the circuit court at Towson, Md., against the Highway Commission of Baltimore county, praying for a writ of mandamus to compel the commission to issue a permit to lay underground conduits on the Philadelphia road, between Herring Run and the Hartford county line, a distance of 12 miles. An order has been passed for the Highways Commission to show cause to the contrary. Some weeks ago the company made application to the Highways Commission for the permit and the Highways Commission refused the permit on the ground that under the laws of Baltimore county all persons or corporations wishing any privileges under or over the highways of the county, must give notice by advertisement for three successive weeks in two newspapers of the proposed application and then submit the question to Highways Commission to impose reasonable compensation for the use of the highways. The company contends that their company does not have to advertise or pay for the use of the road.

Arrested for Tipping Clerk for Supplying Daily Lists Of New Subscribers.

In the Tombs Court at New York, Section 439 of the Penal Code, which forbids the giving of unlawful gratuities was invoked by the New York Telephone Company against a furniture salesman.

A special agent of the company charged that the defendant had entered into an agreement with one of the company's clerks in the traffic department, by which the latter was to furnish the salesman every day a list of new subscribers. The arrangement had been in force since last September, and the clerk made an affidavit that he has received $2 a week from the defendant.

The salesman used the names in connection with his business. As soon as a person would apply to the company to have a telephone installed, he would get the name from the clerk and call on the new subscriber, offering to sell him furniture. Defendant was held in $500 bail for trial in special sessions.

Current News

Convention of Canadian Independent Telephone Association to be Held in Toronto in November.

The Annual Convention of the Canadian Independent Telephone Association will be held in Toronto during the week ending November 19 at the time of the Horticultural Exhibition and Conventions of the Farmers' and Women's Institutes. This change has been made because it is believed that during the week named a much larger number of progressive farmers will be in the city, thereby affording a good opportunity of boosting the development of rural telephones. Furthermore, past experience has shown that the Canadian National Exhibition during which time former conventions were held, is so big an attraction that it is not possible to hold the delegates at the meetings. This time it will be the endeavor of the Association officers to make the convention a practical business meeting. Further information regarding the meeting will be given later.

Big Plans for Texas District Convention.

A revival of interest in statewide plans for the upbuilding of the telephone systems of the state, and a general get-together campaign is one of the progressive signs from Texas. The latest news in this line is from San Marcos.

D. H. Bruton, manager of the San Marcos Telephone Company and vice-president for the Third district, Texas Independent Telephone Association, has called a convention for that district in San Marcos for September 16. Mr. Bruton has received word from a number of prominent men, including representatives from all of the principal north Texas cities, that they will be certain to attend the convention. Notices and letters will be sent to all the Independents in the state and plans will be made for their entertainment.

The Knights of the Shield, an order composed strictly of Independent telephone men, will meet on the same dates.

The acquisition of the San Marcos Telephone Company by a number of the wealthiest citizens of the city will result in a complete installation of new equipment. A common battery system will be put in, practically the entire town cabled and new rural connections added.

Nebraska Telephone Company Defends Itself Against Ouster Suit by Denying Trust Methods.

After Attorney General Thompson had filed suit in the supreme court charging the Nebraska Telephone Company with violating the state anti-trust laws and had asked for a revocation of the charter of the company, he submitted a list of questions to the officials of the company. The answers to these questions were filed in supreme court last week. The reply is voluminous, but none the less interesting on that account.

The attorney general first asked for a full copy of all of the contracts with the American Telephone & Telegraph Co. The Nebraska company replies with a volume of several hundred pages of contracts

The authorized capital of the Nebraska company is $7,500,000, and in reply to questions, the officials assert that the American Telephone and Telegraph company owned $3,430,500 of this stock, a clear majority of stock issued.

Except for 3,941 shares of this stock it is stated that the A. T. & T. Co. paid par. Of the balance not paid for, 3,076½ shares were paid in the 80s for the use of Bell patents in Nebraska. Dividends were paid at various times with 864½ shares. It is explained that at the time these payments were made the Nebraska company was using all its earnings for extensions. It is asserted that the stock dividends would not amount to 7 per cent per annum.

The Nebraska company has since 1906 borrowed more than $500,000 from the A. T. & T. Co., as it would borrow from any banker, and now owes $220,000 on notes for such borrowed money. The Nebraska company has no bounded debt but had a floating debt of $1,400,000 July 10.

The company in its answers says it has no publicity agents in Nebraska and that it has not made appropriations for publicity or political purposes.

It does not give the amount of expense incurred in fighting competition, as asked for, but answers that it has not fought competition, that it has endeavored by legitimate and fair means to increase its business. The company says some of its rates are compensatory and some are not, but on the whole the rates are sufficient to pay 6 per cent dividends.

In answer to an interrogation as to whether the company has ever given special inducements to prospective subscribers by appointing them agents and paying a cash consideration therefor, the agents' only service to be to speak a good word for the company, the company replies:

"This question is too broad—and indefinite to permit of answer."

In giving an account of its business the company says it has 58,567 subscribers' stations owned and operated by the Nebraska Telephone Company. Also four thousand nine hundred and ninety-one subscribers' stations owned by the Plattsmouth, Nebraska City and Papillion companies, and that said companies are about to make connecting contracts with the Nebraska Telephone Company.

Gloomy Views of Government Ownership of Telephones in Great Britain.

"Nobody here appears to regard with pleasure the transfer of the National Telephone Company's business to the State," says a London correspondent of TELEPHONY. "In business circles everywhere it is clear that the change from commercial to government management will inevitably result in reduced efficiency and slower development of the telephone service. One press correspondent asserts that if we had had the same telephone development here as you have had in America, we should now have three million telephones in use instead of only six hundred thousand. Another critic compares our suburban and long distance calls which are a daily exasperation to those that use them with the quickness of American suburban and long distance calls.

"At the present time practically every member of the National Telephone Company's staff that can be spared, is engaged not on contributing to the excellence of the service, but in preparing figures with a view to a settlement of the amount to be paid by the Government as purchase price. It is said that the costs of both parties before the thing is finally settled will not be far short of half a million dollars.

"Furthermore, the view that the approach of the transfer would react unfavorably upon the capital expenditure of the undertaking is also being borne out. Secretary Anns of the National Telephone Company, speaking at the recent annual staff dinner, said that the expenditure on development is now less than half what it was two years ago. The reduction is so great that hundreds of men on the construction staff have had to be discharged, while many others have been taken from construction work and put into other departments. This state of things is due to the fact that the board cannot justify fresh expenditure on capital account when the plant is on the eve of sale at its "then value" for the purposes of the undertaking, independent of all allowances for good will, future profits, or any other consideration. The proper development of the telephone demands large and continuous outlay in advance of requirements. Spare wires and spare ducts have to be laid, and

exchanges have to be designed on a liberal scale so that new subscribers may be connected up with a minimum of time and trouble, and without diminishing the efficiency of the whole system of communication. The National Telephone Company has frankly abandoned this policy of providing for the future, and has discharged hundreds of its construction staff, and as the post office has not absorbed all these skilled hands, it is evident it is not making up for the reduced enterprise of the company.

"It is not, however, the shareholder who is suffering from the change which we so clearly foresaw. Mr. Anns pointed out that the revenue and profits are increasing most satisfactorily, as the company is now reaping the harvest of its outlay-in-advance in former years. The staff suffers and the telephone using public suffers. Apart from the question of efficiency, the value of a telephone service depends heavily upon the number of people subscribing to it. Therefore, the business community has a direct interest in seeing that capital is poured freely and continuously into the construction account of the telephone system. At present that account has dried up, so far as the company is concerned. The post office can induce the Treasury to grant no more than insufficient driblets year by year, and its energies are now mainly directed to the prolonged and costly arbitration which is to accompany the transfer of the telephones to the State. It seems more certain than ever that, when the transfer is completed, the post office will continue to find a difficulty in obtaining adequate telephone grants from the Treasury. The tendency of all government departments is to spend no more than is required for immediate needs. There is not much hope that the Treasury will, in 1912, sanction a grant based on the estimated needs of 1915.

"Moreover, there is little hope at present that the post office will ever acquire the money or the keen energy needed for the business-getting campaign which a really progressive telephone undertaking must pursue in order to bring the telephone into wider and wider use. Compared with America we are still immensely backward in the use of the telephone. Unless the situation is altered so that capital will flow readily, at the rate of millions every year, into telephone development, we shall remain backward, to the detriment of commerce. The question, it will be seen, goes much deeper than that of telephone rates, since an efficient and universal telephone service is worth ten times more to a business man than one which is slow, uncertain and limited in its range.

"George Franklin of the National Telephone Company, also speaking at the above mentioned dinner, said that during the past year they had added 32,153 stations, increasing the number to 516,888. The number of messages transmitted over the company's lines in the year had been 1,362 millions, or 39 millions more than in the previous year, and the cost per message worked out at 1.02 cents. Great Britain had one telephone for every 77 of the population, as compared with one for every 71 in Germany, one for every 202 in France, one for every 625 in Italy, and one for every 955 in Spain.

"Of course, there is no lack of reassuring statements issued by the General Post Office."

Pioneer Company Appeals Against Decision that it Must Connect with Competitor.

The "universal service" brotherhood has a backsliding member.

The Pioneer Telephone & Telegraph Co., the Bell licensee in Oklahoma, last week appealed to the supreme court from the order of the corporation commission requiring it to make physical connection with the Grant County Rural Telephone Company of Pond Creek. The commission, in that order laid down the general principle that a telephone company operating a toll line is required to make physical connection with every local company intersecting its line when requested, even though it may be maintaining a local exchange in direct competition with the company desiring connections. The Pioneer company takes exceptions to that ruling.

Nebraska Bell Company Files Financial Report With State

The Nebraska Telephone Company has filed its report at Lincoln showing the business it has done during the fiscal year. The gross receipts amounted to $2,032,854; total operating expenses, $1,441,811; interest paid, $27,154; taxes paid, $73,541; 6 per cent dividend on common stock, $278,013; insurance, $3,925; rights, privileges and use of other property, $91,528; net surplus, $116,882.

Statistics on Loses of Telephone Property by Fire.

The Telephone Fire Insurance Exchange, Cleveland, Ohio, under the management of James B. Hoge, has prepared for distribution to its policyholders a neat booklet giving much valuable data on insurance on telephone properties. Any Independent telephone company interested can probably get a copy by addressing the company.

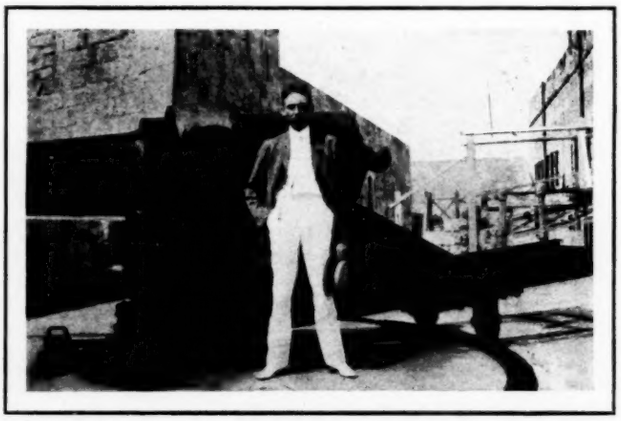
The exchange has undertaken to keep accurate statistics on all losses to telephone properties, by fire or otherwise, and Mr. Hoge would greatly appreciate the co-operation of telephone companies in gathering this information, which will be of lasting benefit to telephone companies.

One of the Workers in the Telephone Field.

One of the young men who have made rapid advancement in the telephone field is Mr. W. T. Powell, who will be remembered by TELEPHONY's readers from his contributions at various times in the past few years.

Mr. Powell was born in New Vienna, Ohio, 25 years ago and received his start in the telephone business at that place as night operator with the Central Union Telephone Company. In 1902 he entered the employ of the Home Telephone Company at Dayton, Ohio, and has been working with automatic telephone companies ever since with the exception of one year spent in the employ of the Cumberland Telephone and Telegraph Company in Memphis, Tenn. Mr. Powell has had charge of exchanges at Albuquerque, N. M., Miamisburg, Ohio, Aberdeen, S. D., Dowagiac, Mich., and Billings, Mont., besides working on the plants in Dayton, Akron and Columbus, Ohio.

At the present time he is in charge of the automatic equipment of the three exchanges in Havana, Cuba, which



Mr. W. T. Powell in Morro Castle, Havana.

news his many friends will be glad to hear. As seen from this brief sketch of Mr. Powell's experience, esecially for so young a man has been extremely varied. He has covered a great amount of territory and gained a knowledge of telephone conditions which is of great value to him.

Stadelman, General Manager of a California Company.

The Nebraska boys have lost one of their best friends and most enthusiastic workers in the field of Independent telephony. W. J. Stadelman has left Norfolk, where he built up a model system, to become general manager of the Santa Monica Bay Home Telephone Company, Santa

Mr. W. J. Stadelman.

Monica, California. It is needless to say that "Stad" has a good proposition and will make it better in every way. He seems to be cheerful and enthusiastic, as usual. He certainly will be missed at the Nebraska conventions.

Cumberland Company Denies it is a Trust.

The Cumberland Telephone and Telegraph Company filed a demurrer in the chancery court in Booneville, Miss., on August 12, to the bill filed some time ago by the attorney-general of the state against it asking for the enforcement of penalties to the amount of $1,500,000. There are ten grounds of demurrer, in which the company denies that it is a trust, and says that the railroad commission has full jurisdiction and that the chancery-court is therefore without jurisdiction. The final and last ground of demurrer is that to enforce the penalties sued for would be violative of the constitutions both of the state and of the United States. The case will come up for hearing in September.

Consolidated Companies of Pennsylvania Issues $300,000 Additional Receivers' Certificates.

By an order of court the Allentown Trust Company is made trustee for the issue of $300,000 of receivers' certificates for the Consolidated Telephone Companies of Pennsylvania, to secure the payment of promissory notes, take up collateral certificates of indebtedness of the concern. This is the second issue of certificates ordered by the court. The first issue was for $35,000. Charles West and C. M. W. Keck are the receivers.

The last issue is known as series B and is made payable July 20, 1912, bearing 6 per cent interest.

Every Subscriber Put on a Two-Party Line.

Patrons of the Kansas City Home Telephone Company at Independence, Kan., received notice that each residence telephone would be on a two-party line after August 1. The company's action follows a decision of the district court ordering the reinstatement of the telephone of Miss Nellie Barret.

Miss Barret refused to accept telephone service on a two-party line, and the company removed her telephone She brought suit in the district court to compel the company to reinstate service on an individual line. On the ground of discrimination, a decision was rendered in her favor and the company settled the case by paying the costs and installing the telephone as ordered by the court.

The holding of the court was substantially that the company had no right under its franchise to give more than one kind of service. So to enable the company to give two-party line service without any future charge of discrimination, it determined to put every subscriber on a two-party line. To prevent it, the subscriber will have to have both telephones of the line in his own residence. This will be done for two dollars a month. There will be no change in the rate for telephones furnished business houses.

Independent Telephones for Public Schools in Place of Bell.

At the last meeting of the board of education of Rensselaer, N. Y., contracts were entered into with the Rensselaer Home Telephone Company to place Independent telephones in the three large public schools in the city. The instruments of the New York Telephone Company (Bell) were ordered removed from Schools 1 and 3 on September 1, the date the new contract goes into effect.

An Independent Alphabet from Nebraska.

Lysle I. Abbott, receiver of the Independent Telephone Company of Omaha, Neb, is putting out a little paper for the

THE AUTOMATIC

A, B, C, of Independent Telephony.

You Should Know

AUBURN, Nebr., has approximately
Independent Telephones.. 800
All other companies..... 6

BLAIR, Nebr., has approximately
Independent Telephones.. 590
All other companies..... 340

COUNCIL BLUFFS, Iowa, has approximately
Independent Telephones.. 4,100
All other companies..... 3,500

DeWITT, Nebr., has approximately
Independent Telephones.. 300
All other companies..... 1

EAGLE, Eddyville, Elmwood, Eldorado and Elm Creek have only the Independent Exchange service.

FAIRBURY, Nebr., has approximately
Independent Telephones.. 1,400
All other companies..... 75

FALLS CITY, Nebr., has approximately
Independent Telephones.. 850
All other companies..... 1

GAGE COUNTY, Nebr., has approximately
Independent Telephones.. 3,350
All other companies..... 1,400

HOWARD COUNTY, Nebr., has approximately
Independent Telephones.. 1,015
All other companies..... 45

HASTINGS, Nebr., has approximately
Independent Automatic Telephones 1,200
All other companies..... 945

INDEPENDENT telephones in central and eastern Nebraska lead the field by three to one over all other companies.

JEFFERSON COUNTY, Nebr., has approximately
Independent Telephones.. 3,400
All other companies..... 85

KEARNEY, Neb., has approximately
Independent Telephones.. 875

KANSAS CITY, Mo., has approximately
Independent Telephones.. 28,000

LINCOLN, Nebr., has approximately
Independent Automatic Telephones 8,000
All other companies..... 4,500

MONROE, Nebr., has approximately
Independent Telephones.. 275
All other companies..... 1

NELSON, Nebr., has approximately
Independent Telephones.. 610
All other companies..... 15

OMAHA'S Independent Telephone Company is connected with three times as many Independent Exchanges and subscribers as are operated by all other companies in central and eastern Nebraska.

PAWNEE CITY, Nebr., has approximately
Independent Telephones.. 655
All other companies..... 3

QUIT paying messenger service on long distance messages and use the Independent Line to reach your party at his home or office.

RISING CITY, Roseland, Ruskin and Rulo have Independent Exchange service **only.**

SALINE CO., Nebr., has approximately
Independent Telephones.. 1,790
All other companies..... 2

SIOUX CITY, Iowa, has approximately
Independent Automatic Telephones 5,300
All other companies..... 2,600

THAYER COUNTY, Nebr., has approximately
Independent Telephones.. 3,370
All other companies..... 12

ULYSSES, Unadilla, Union and Utica have the Independent Exchange only.

VALLEY COUNTY, Neb., has 875 Independent Telephones which connect with Omaha through the Long Distance Independent Telephone System.

WASHINGTON COUNTY, Nebr., has approximately
Independent Automatic Telephones 1,450
All other companies..... 340

YORK, Nebr., has approximately
Independent Automatic Telephones 3,525
All other companies..... 375

All of the Independent Telephones mentioned above are connected with Omaha by copper toll lines

Nebraska's Independent Alphabet.

information of the subscribers, called "The Automatic," which well deserves the sub-title of "A Magazine of Cleverness." One of the hits in the current issue is the page here reproduced. This alphabet should add to Nebraska's already numerous laurels in the field of Independent telephone development.

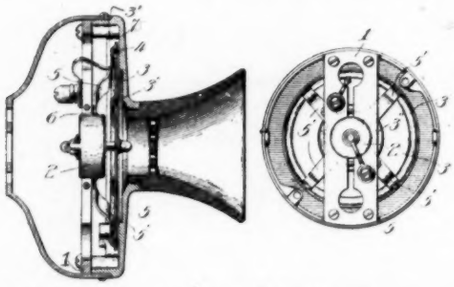
Recent Telephone Inventions

By Max W. Zabel

TRANSMITTER.

H. S. Mattison, La Crosse, Wis., pat. 967,217, Aug. 16, 1910, assigned to Vote Berger Co., La Crosse.

This transmitter has a corrugated diaphragm 3, having two annular corrugations, one of which carries the insulating



rubber casket 4, lying closely within the groove and serving as a cushion and insulator between the diaphragm and the case. Four damping springs are used which press against the diaphragm at the outer corrugation 3'. It is claimed that by thus corrugating the diaphragm, the diaphragm is stiffened as to eliminate its natural vibrations of the low frequencies and prevent it from interfering with or modifying the sound intervals of speech.

POLE PROTECTOR.

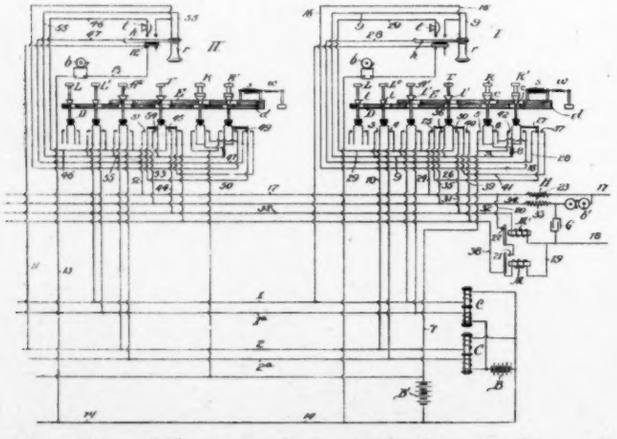
R. B. Lamb, Mount Holly, N. J., pat. 966,337, Aug. 2, 1910.

The protector for poles shown in this patent consists of a cylindrical shell which surrounds the pole at the surface of the ground. Between this cylindrical shell and the pole, stakes are driven which maintain the concentric relation of the shell to the pole. Asphalt or other protective is then filled in between the shell and the pole.

PRIVATE BRANCH INTERCOMMUNICATING SYSTEM.

N. H. Holland, Chicago, pat. 967,773, Aug. 16, 1910, assigned to Western Electric Co., Chicago.

This intercommunicating system is designed to permit answering of a trunk call at a plurality of stations, and to permit communication between stations when such a call comes in without displaying a disconnect signal at the cen-



tral station. When a call is received over the trunk line and is answered, for instance at station 1, the party thereat removes his receiver and depresses the trunk key T, which remains locked by reason of the plate E, and the circuit is established including relay M'. To transfer the call to another station, the party at station 1 depresses local key L^2 corresponding to station 2, and then rings the station by the transfer ringing key R'. This establishes a substitute path for current from the trunk line so that the central station does not get a disconnect signal. The release of the key T at station 1 disconnects the telephone set from the trunk line and permits of secret communication between stations 1 and 2.

MICROTELEPHONE.

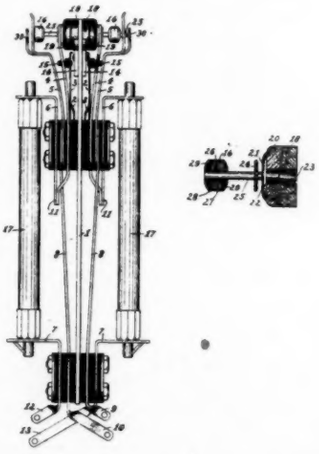
J. N. Wallace, La Crosse, Wis., pat. 967,276, Aug. 16, 1910, assigned to Vote-Berger Co., La Crosse, Wis.

The hand microtelephone described in this patent consists of the ordinary transmitter and receiver, and a handle which is composed of two half tubular members carrying in their interior the induction coil and switchhook. The half tubular members are bound together by two binding members mounted upon the outside.

PROTECTIVE APPARATUS.

F. B. Cook, Chicago, pat. 966,655, Aug. 9, 1910.

A central station protective device is disclosed in this patent having springs for supporting the heat coils 16, springs for



supporting the lightning arresters 18 and also springs for supporting the line fuses 17. The lightning arrester consists of the two plates 18 and 20 held upon an insulating tube 23 which is mounted on a stem 22. The heat coil consists of a spool 26 and an encircling shell 16 placed around it but insulated from the spool and shaft. Comminuted material is interposed between the spool and encircling shell which heats the spool 26 and permits it to slide along the shaft 25. The spool is held to the shaft by means of readily fusible solder.

TELEPHONE SYSTEM.

H. G. Webster, Chicago, pat. 967,692, Aug. 16, 1910, assigned to Kellogg Switchboard & Supply Co.,

This common battery system contemplates the use of a relay which closes the talking contacts when any station answers. It is of such character that when the circuit at one station is closed on a party line, no other party line instrument can close its talking circuit, as the low resistance bridge of the transmitter prevents another station from getting sufficient current to operate the relay. If a talking circuit is desired between two stations on the same line the calling subscriber must operate a key to permit the other station to cut in on the line.

TELEPHONE SYSTEM.

C. S. Winston, Chicago, pat. 967,476, Aug. 16, 1910, assigned to Kellogg Switchboard & Supply Co.

The common battery system here illustrated comprises a line relay and the ordinary cut-off relay, in addition to the supervisory relay. To control the supervisory relay a second relay, furnishing current to the line is used. It controls, by means of its armature and contact, a shunt circuit about the supervisory relay.

NOISE EXCLUDER AND CURRENT SAVING DEVICE.

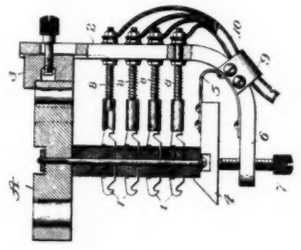
W. E. Burt, Yuba, Wis., pat. 967,719, Aug. 16, 1910.

The device illustrated in this patent is in the form of an attachment for the telephone. It is designed to hold the receiver hook at a point at which the battery circuit is broken but the talking circuit intact, so that conversation can be heard from the line without the transmitter being in service.

TEST DEVICE.

A. H. Adams, Antwerp, Belgium, pat. 966,728, Aug. 9, 1910, assigned to Western Electric Co., Chicago.

A test device is illustrated which is designed to make connection with any line for the purpose of testing the line and

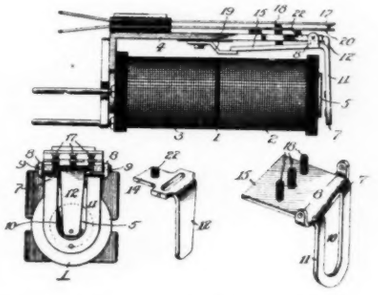


observing the service on that line. The test device comprises a bar 2 and an adjustable block 3 to engage the cross-connecting frame *A*. The plate 2 carries spring pressed plungers 8 to engage the cross-connecting clips 1. Wires from the spring pressed plungers 8 form a cord 10 which goes to the observing operator's desk. An adjustable spring catch 4 works in conjunction with the block 3 to hold the device in place.

RELAY.

H. Poser, Hermsdorf, near Berlin, Germany, pat. 966,764, Aug. 9, 1910, assigned to Western Electric Co., Chicago.

A combination line and cut-off relay is here shown, having two coils 2 and 3 and two armatures 11 and 12. These arma-



tures are both pivoted on the same pins and one fits into the other. Armature 12 is actuated as a line relay armature when one coil is energized and armature 11 is actuated to permit its operation as a cut-off relay when both coils are energized.

SIGNAL ATTACHMENT.

W. F. Mikolasek, Scotland, S. D., pat. 967,409, Aug 16, 1910, assigned one-fifth to J. F. Schmidt, one-fifth to F. L. Wheeler, one-fifth to P. O. Stonebraker, Scotland, S. D.

The object of the invention illustrated herein is to signal any two or more parties on a line, upon the closing of the talking circuit through another party telephone, thus to produce a selective system. A further object is the provision of a dashpot arrangement in connection with the switchhook to permit operating the same without jar and to cause an even closing of the circuits of the switchhook.

Shop and Salesroom

The Anderson Party-Line Lock-Out System—Its Uses and Possibilities.

By W. J. Miskella.

In previous numbers of TELEPHONY the Anderson lock-out system has been described, both from the mechanical standpoint and from the electrical standpoint. We will now outline a few of the possibilities that are opened up by the perfection of this system and endeavor to point out what it means to the telephone industry in the way of improving the relations between subscribers, and between subscribers and the telephone company, as well as the opportunity that it gives the telephone company for economical construction of its lines. The party line lock-out system has been designed primarily to enable secret service to be given on party lines, but, fortunately, it carries with this other advantages that are most worthy of note.

From the subscriber's standpoint, some of the disadvantages which the lock-out system does not possess may be briefly enumerated as follows:

Misinterpretation of the number of code rings.

Inability to keep ringers in perfect adjustment.

Annoyance due to third party desiring use of line.

Decrease of talking transmission due to "listeners."

The Anderson party line lock-out system, in addition, gives secret service. No misinterpretation of the code rings is possible, because each party gets an individual ring. If two parties on the same line are desired, they may be rung simultaneously. It is almost impossible for an undesired party to be rung by mistake unless it is done deliberately.

All the ringers that are used on a new line may be installed just as they are received from the factory with no more adjustment afterward than would be required if the same telephone were installed on a private line. This, of course, makes the work of installing new telephones easy and permits the employment of only ordinarily skillful labor—an important item in a large exchange.

It is impossible for any locked-out party to annoy the talking parties. The only thing that he can do is to signal "Central" that he desires the line, and she may pay attention to his signal or not, just as she wishes, depending on circumstances. The conversation between the talking parties progresses uninterrupted until "Central" comes in on the line in answer to an emergency call. As previously pointed out, a red busy signal is displayed at all the stations on a lock-out party line that is in use, and this red busy signal is changed by "Central" to a white clearing signal just as soon as the conversation is finished. This, obviously, makes it unnecessary for the party who desires the use of the line to approach the telephone and remove the receiver occasionally until he finds that the line is not occupied by some of the other parties.

The removal of a third party's receiver from the hook does

not interfere in the least with the transmission of a conversation then in progress because the receivers at all the uncalled stations are short-circuited.

All of these improvements are of advantage not only to the subscriber, but to the telephone company as well. The price of private telephone service is the reason for the existence of the public party line, for if the price were the same for both private and party line service, all subscribers would insist upon having a private wire. It is, therefore, logical to assume that the public would be quite ready to accept the party line lock-out service at a price intermediate between that now charged for private line service and that charged for party line service, even if they were enabled thereby to obtain only the other improvements introduced, and did not actually obtain secret service. Too much emphasis cannot be laid upon the subsidiary improvements mentioned, for each and every one of them is vitally important.

Among the advantages of a party line lock-out system, more interesting from the standpoint of the telephone company, may be mentioned the following:

a. Permits the inauguration of measured service on party lines.

b. Decreases maintenance costs, and makes connection with new subscribers more accessible.

c. Opens up a wider field for the extension of service.

a. In the case of the common party line, the idea of using measured service is wholly out of the question, because it is not within the power of the central operator to ascertain which particular party is in connection, while with the party line lock-out system this is possible. In this system, too, we find a remedy for forestalling the attempts of certain dishonest persons to divert the charges for a toll call to some other innocent party on the same line. For example, a long distance call might be sent in from station five. This person could very easily say that his station was fifteen and have the bill sent to subscriber number fifteen, who, of course, would deny the charge. The telephone company would generally be the loser, because it would be a difficult matter to find out which of the other parties on the line really made the call. With the lock-out system party number five would be locked out and party number fifteen called. After detecting the fraud, it would be a simple matter for "Central" to catch the defrauding party at station number five awaiting the expected toll connection.

b. As eighteen parties can be placed on one line. One pair of private wires to an outlying district, for instance, will often increase the telephone company's revenue, if that private line is sacrificed in the interest of getting the old private subscriber and the new customer to accept a lock-out line and thereby enroll the new customer, and at the same time make ample provision for the extension of territory in that particular district. If, then, orders for telephones should come in from other persons in this neighborhood they could be given immediate connection, thereby starting the telephone company's revenue almost as soon as the order is in hand, instead of leaving it to wait for the construction department to lay a new cable or string a new pair of wires.

c. No doubt the long distance side of the telephone industry is often the more profitable, and anything that can be done to secure new subscribers who are likely to require long distance service is not to be overlooked. The small exchange operator may increase his rural patronage, because the service can be given to the subscriber at a lower price, and because many prospective subscribers, who would otherwise not be interested if they could be assured of secret service, would install telephones. For example, the farmer who does an extensive grain business naturally has to watch the markets closely. The transaction of his business over the party line telephone would be the height of folly, because of the chance of having his neighbor overhear such information as might be given out. To guard against this, it is a known fact that present party line subscribers go to the trouble of making a special trip to town to secure private service. It is therefore evident that the toll business would increase from the above man, for example, for he would make many more calls than he now makes by having to go to town to secure the use of a private wire, if he were prevailed upon to install a lock-out telephone. The lower rental, coupled with the assurance of secret service, is bound to increase the number of subscribers among the country people.

A study of the various points as briefly outlined above for the improvement and extension of party line service will prove of much interest to enterprising telephone exchange managers who will take that time to consider the gradual adoption of a complete party line lock-out system by first installing a trial equipment on one or two lines. The outlay for such a trial would be very nominal and the opportunity for each man to make a personal investigation of this important proposition would prove of much value to him.

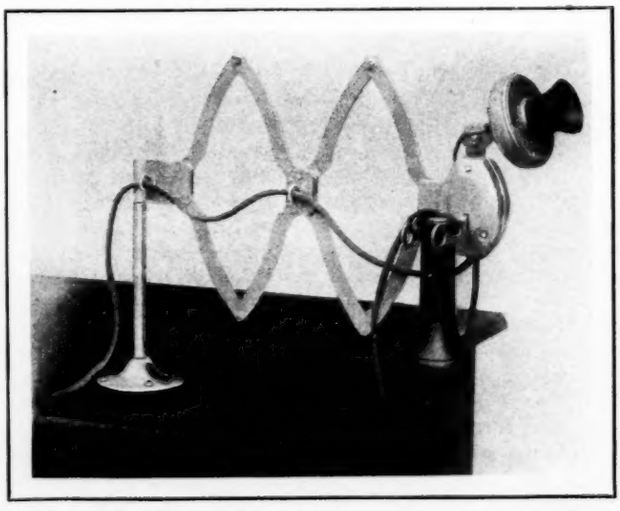
The lock-out equipment that has been described in these three articles is manufactured and marketed by the Anderson Electric and Manufacturing Company, Wichita, Kans.

"The Adjustaphone"—A Popular and Profitable Convenience.

Readers of TELEPHONY will be glad to note that the Chicago Writing Machine Company, which is now located in its own plant at Galesburg, Ill., is once more prepared to fill orders on the "Adjustaphone," which was formerly one of the most popular and profitable conveniences enjoyed by telephone companies.

Some time ago, the Chicago Writing Machine Company changed management on account of the death of its president, Mr. Hill. His successors diverted the capacity of their plant, at that time, chiefly to the manufacture of typewriters and other specialties, on which they held patents. Quite recently, however, there have been some changes and, it was found more business on the "Adjustaphone" could be handled. The company therefore invites inquiries and orders for this appliance.

It has a very complete factory in which every modern machine imaginable is located. A fully equipped electric light plant, plating department and a railroad spur leading to the factory doors are among the other advantages. These features are mentioned on account of the important share



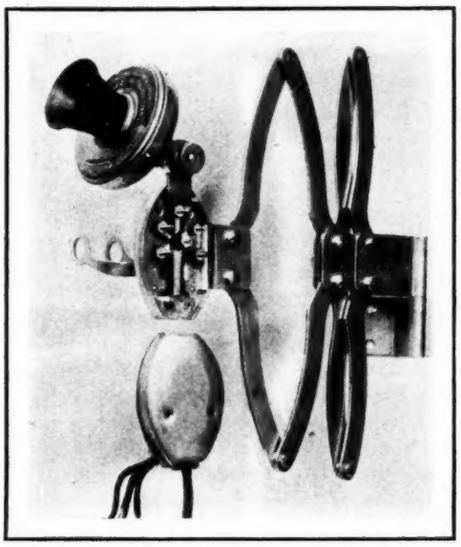
The Double Length Adjustaphone for Flat Top Desks.

which they contribute in producing a high class article at a low cost.

The "Ajustaphone," with its very convenient extension holder, sells at a low price, and its manufacturers claim that it saves fully as much more in the item of breakage.

Most telephone men are familar with the construction

of this device. It does not fall and break, and is said to prevents twisting and wear on cords. The "Adjustaphone" also has been demonstrated to be the essence of simplicity and one of the best promoters of service extension ever offered. Many telephone managers, who have had strenuous competition, report that the "Adjustaphone" wins sub-



The Adjustaphone, Showing Switch and Connection.

scribers every time, when shown in competition with the Bell. It thus serves not only to increase the patronage and popularity of the Independent telephone system, but to reduce installation cost and maintenance charges as well.

Under such circumstances it is not surprising that the "Adjustaphone" has proven a commercial proposition, which appeals strongly to practical telephone men. Its manufacturers will be glad to send all interested parties the latest descriptive matter bearing upon this appliance which met with such favor a few years ago.

Telephone Printing and Supplies.

Readers of TELEPHONY should know that while the Western Telephone Journal has been sold, Will M. Traer and others who were so long identified with that publication, will continue the Telephone Journal Press at Vinton, Iowa. They will specialize in telephone job printing, office supplies, directories, etc. They always have been very popular throughout the Independent field and, being now unhampered by any periodical, will have more time and facilities to devote to commercial work.

Fire Destroys Storage Warehouse of Stromberg-Carlson Company at Rochester, N. Y.

Fire destroyed a large frame storehouse of the Stromberg-Carlson Telephone Manufacturing Company's plant at Rochester, N. Y., Sunday morning, August 21. The damage is estimated at about $27,000 and is covered by insurance. Work has already begun with a large gang of men to remove the debris and prepare for building a new concrete storage plant, which will be located in the same space occupied by the burned building.

The building, 150 by 100 feet on the ground and one story in height, was an old structure, having been used years ago by the Chace Nursery Company as a packing shed. The outer walls were covered with sheet metal and the roof had a coat of tar and gravel, all of which afforded protection from sparks from New York Central locomotives. The floor was of earth.

Within the building were stored cable spools, bolts, nails, crossarms and pins, wrapping paper, excelsior, millwright's supplies and scrap metals. The entire contents of the building were destroyed.

The fire will not interfere with the regular work of the company, as no manufacturing was done in that building. The company will be able to purchase locally material similar to that which was stored in it and there will therefore be no business interruptions.

The Peerless Plug Set.

A new style of plug test set has recently been produced and put upon the market. This set is designed for testing engineers who prefer a plug type set, or who do not care to go to the extra expense of a switch type set, in which the only difference lies in the rapidity of manipulation.

The resistance coil blocks and plugs are arranged in numerical order, so that when looking at the set with the plugs out, the total resistance measured would read as a column of figures; thus the result may be seen at a glance.

The *A* bridge arm has values of 1, 10, and 100, and the *B* bridge arm 10, 100, and 1,000. A commutator is provided for reversing the position of the bridge arms, making their range from .001 part to 1,000 times the value of the resistance unplugged in the rheostat. The rheostat has coils of 1, 2, 2, and 5 ohms, 10, 20, 20, and 50 ohms, 100, 200, 200 and 500 ohms, 1,000, 2,000, 2,000 and 5,000 ohms, thus any combination desired may be obtained and very accurate readings result. The accuracy of adjustment of the rheostat coils is 1-10 of 1 per cent, and of the bridge arm coils *A* and *B* 1-20 of 1 per cent.

The set is equipped with a quick make and break switches, to change from the Wheatstone Bridge measurements to the Murray loop test. Provisions are made for outside battery, in case a higher E. M. F. than that furnished by the cells in the set is required

The connections are so arranged that both keys are in circuit in all tests, this being one of the new features.

The Peerless Plug Test Set.

The galvanometer is of the D'Arsonval type, and has a very high sensibility. The magnet is made of the best grade of special magnet steel, carefully aged, and is permanent and strong. The galvanometer is very quick and positive in its action, and the construction and design is such that it is extremely dead-beat so that readings may

be made easily and quickly. The galvanometer key is arranged with a short circuit device, which also help to bring the needle to rest prompty. The scale has thirty millimeter divisions with center zero, is well lighted and easily read, and is uniform, making the set well adapted for insulation measurements.

The batteries are of a regular commercial type with the cell block easily removable by unscrewing four small screws in the bottom of the case.

The set is 8¼ inches long by 5½ inches high by 6 inches wide, and weighs 7½ pounds. The finish is the same as that of the Peerless switch type set, the case being of highly polished mahogany, and the metal work of lacquered brass.

The following tests can be made quickly and accurately with this new type set: Measuring resistance by the Wheatstone bridge method; measuring insulation resistance by the direct reflection method; comparing E. M. F.'s by the fall of the potential method; checking up voltmeters; measuring battery resistance; making the Murray loop test; checking up ammeters by using a shunt of known value; making the Varley loop test; testing out grounds; testing galvanometers made to be used with the shunt in the set, or the galvanometer and shunt may be separately used. In testing the resistance coils only may be used, if desired, the galvanometer and battery can be used in series. series.

The Peerless plug set is put upon the market by Thompson-Levering Company, 244 Arch St., Phila., Pa., who will send further information to interested parties.

Pioneers in Western Cedar.

The Lindsley Brothers Company, of Spokane and Chicago, is mailing out new literature including a card from which we quote as follows: "Empire builders are men who dreamed—and then took off their coats and went to work, making their dreams realities.

"We are the pioneers—the 'empire builders' of the Western Cedar Pole business.

"We produce our own stock, from off our own lands.

"We carry the largest stocks—fifteen yards on four railway trunk lines, three of which are trans-continental.

"We employ only the very best, the most skilled manufacturers.

"We quote the lowest prices consistent with the quality of our material.

"We absolutely guarantee every pole we ship.

"We also furnish Oregon Fir Cross Arms from our own mill at Portland, Ore., the heart of the Douglas Fir Country."

An Economical Insulator for Drop Distribution Work.

The Universal Specialty Company, 121 South Seventh St., Terre Haute, Indiana, has issued a new folder entitled "Some New Suggestions on Methods of Constructing Telephone Drop Circuits." The folder contains illustrations showing the use of the Universal insulators in connection with twisted pair drop wire for telephone distribution. It also shows the insulators fastened to cross arms and the methods of taking the drops from the wires to the building. Illustrations are given showing the insulator used on the sides of buildings in place of bridle rings and brackets. It can also be used to advantage in connection with cable terminals on poles.

Among the advantages of the Universal insulator are the high and permanent insulation obtained by having a separate groove for each wire of the twisted pair; convenience in providing suitable grooves for all turns of the wire. Other conveniences claimed for the insulator are its economy, simplicity, neatness, uniformity, its utility as a house bracket, cross arm bracket or pole distributing bracket, its strength and durability.

The insulator comes in several different sizes and is made of high grade porcelain having a breaking strength several times greater than any telephone drop wire, as shown by tests. Full information regarding the insulator with a sample will be sent to companies interested on request.

The Sumter Company's Telephone Handbook.

Under the title "Telephone Hand Book" the Sumter Telephone Manufacturing Company, Sumter, S. C., has issued a 130 page book containing 80 illustrations, which covers the promotion, organization and construction of telephone lines and systems, and the maintenance of telephone apparatus. The booklet was compiled by Mr. H. R. Van Deventer, which in itself is a guarantee of the reliability of the text.

The first chapter is devoted to the promotion and organization of a company, and gives a sample constitution and by-laws, with the various forms used in petitioning for franchises and right-of-way privileges.

The second chapter takes up a telephone system and the construction, giving briefly standard construction methods.

The third chapter discusses the installation of telephones and protective apparatus, while the fourth chapter describes the various parts of telephone instruments and their uses.

The fifth chapter takes up troubles and methods of locating them. Other chapters deal with various types of switchboards and equipment, switchboard circuits, their troubles and remedies. The hand books will prove of great use to those operating the smaller exchanges, and while sold for 50 cents each can be obtained at reduced rates upon application to the Sumter company.

H. T. Doolittle Joins Sales Staff of Diamond Rubber Company.

Mr. H. T. Doolittle who for the past 11 years has been with the Sterling Electric Company at La Fayette, Indiana, and secretary of that company for the last two years, is now in the sales department of the Diamond Rubber Company. Mr. Doolittle will make his headquarters in the Chicago offices of the company at 1523-31 Michigan Avenue, and will cover the Middle West territory, including Chicago. He will devote his time to pushing the sale of rubber covered wire and lead covered cable. The Diamond Rubber Company, is fortunate in securing Mr. Doolittle who has a wide circle of friends in the telephone field.

Mr. B. F. Wasson, of Clinton, Ill., inventor of the well-known Wasson reel, recently visited Telephony's offices on his return from a trip to Canada. He reports good sales recently of his reel to Canadian telephone companies, including the Canadian Bell Telephone Company, the government telephone system of Manitoba and the government telephone system of Saskatchewan.

Patents have been granted on the Wasson reel in England and arrangements for marketing it abroad are to be made directly.

Illinois Electric Company, 239-241 Madison St., Chicago, Ill., has recently issued catalog No. 19 of electrical supplies. The catalogs issued by this company are always a great addition to the trade literature and this one is no exception. It consists of nearly 900 pages filled with illustrations, descriptive matter and prices of everything used in the electrical industry. Tables relating to the properties of the various kinds of wire are also included in the book.

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

MR. CHARLES B. ABBOTT has been promoted from the managership of the Central Union Telephone Company at Mansfield, Ohio, to the management of the company's plant in Toledo, Ohio.

MR. LEIGH S. Keith was married on July 25 to Miss Jeanette Munroe, of Everett, Mass. For a time after graduating from the Massachusetts Institute of Technology, Mr. Keith was at New York City, with the New York Telephone Company, where he did important engineering work of a general character, and more particularly in connection with central office equipment. More recently he has been associated with McMeen and Miller, consulting engineers, where his scientific attainments and practical experience have caused his services to be appreciated by clients of the firm.

NEW COMPANIES.

BOLTON, CONN.—The Bolton & Coventry Telephone Company has filed a certificate of incorporation with a capital stock of $2,000 to construct and operate rural telephone lines. The incorporators are: Myron W. Main, of Bolton, Conn., and Robert W. Pitkin, of Coventry, Conn.

DOVER, DEL.—The Draper Telephone Company, a Delaware concern, has been incorporated to erect and establish telephones, telegraph and electric light plants, and to engage in business as a general light, heat and power supply company. The incorporators are Joseph G. Davis, Henry M. Deputy, Horace E. Bennett, all of Milford, John H. Vreeland, of Lincoln City, and David H. Argo, of Argo, Del. The capital stock is $2,000.

LAGRO, IND.—The Lagro-Andrews Telephone Company has filed articles of incorporation with the secretary of state. It is the declared purpose of the company to build, equip, maintain and operate telephones, telephone lines and telephone exchanges in Lagro and Andrews and throughout Huntington county. William O. Taylor and Daniel A. Taylor are the incorporators. The capital stock is $10,000, common, and the incorporators propose to issue $6,000 of preferred stock divided into sixty shares of $100 each.

GOODLOE, KY.—The Goodloe Telephone Company has been organized here by Frank Hughes, R. F. Horton and others with a capital stock of $500—for the purpose of building a telephne system in Godloe. R. F. Horton is manager.

JESSE, KY.—The Mace's Home Telephone Company has been organized here by F. M. Cornette and others with a capital stock of $500. They will build a telephone system in Jesse as well as lines to Hazard and Viper. F. M. Cornette is manager of the company.

EAST GILEAD, MICH.—The East Gilead Mutual Telephone Company, with its principal office at this place, has filed articles of $2.000. The incorporators are Henry Beck, Frank J. Conklin and Geo. O. Bixler, all of East Gilead.

ROBBIN, MINN.—The Bobbin Rural Telephone Company of which Louis J. John is president, has been incorporated with a capital stock of $3,500.

FORBES, MO.—The Business Men's Telephone Company has been incorporated with a capital of $3,000.

PARMA, MO.—The Parma Telephone Company has been organized at this place and will incorporate. The company is preparing to build an exchange of about 100 subscribers. J. P. Salyers is secretary.

RALEIGH, N. C.—The Lee Telephone Company, of Thomasville, with main office at J. W. Lee's residence, R. F. D. No. 4, Thomasville, has been chartered to run a rural telephone service from Thomasville to Denton and adjacent country not in conflict with the other lines now in existence. The capital stock is $10,000 and the stockholders are: J. E. Lee, of Light; Wm. Jarrett, J. W. Lee, J. M. Easter, W. H. Underwood, of Thomasville, R. F. D. No. 4.

RALEIGH, N. C.—The Harrisburg Telephone Company, of Harrisburg, has been chartered to construct, maintain and operate telephone lines, with a capital stock of $10,000. The stockholders are J. E. Morrison, S. A. Grier, C. W. Miller, J. W. Miller, C. A. Snell and others, of Harrisburg.

ONEONTA, N. Y.—The Otsego and Delaware Telephone Company has been incorporated with an authorized capital stock of $750,000 and par value of shares $100. The incorporators are Frank Shipman, Cooperstown; Eugene D. Stocker, Cooperstown; Frank D. Miller, Oneonta; De Forest Keyes, Oneonta; Clarence W. Hitchcock, Utica; Fox Sponable, Fort Plain; Henry P. McDonough, Newark; John E. Fraser, Auburn, and H. F. Stevens, Syracuse.

WELLSVILLE, N. Y.—Articles of incorporation have been filed by the Allegheny County Telephone Company with an authorized capital stock of $200,000. The incorporators are H. F. Stevens, B. H. Shepard, W. J. Farquhar, R. G. Kennedy, H. H. Nicholson, of Syracuse, and John C. Leggett, Cuba; J. L. Grantier, Wellsville; Charles T. Earley, Olean; W. J. Weldner, Wellsville; Edward B. Rogers, Buffalo, and Clarence Ricker, Belmont.

GUTHRIE, OKLA.—A charter has been issued to the Jester Telephone Company of Jester, Okla., with $2,000 capital stock. The officers are W. F. Corder, president, A. W. Lock, vice president, and L. J. McMinn, secretary, all of Jester.

MOODY, OKLA. (Cherokee County)—The Moody Telephone Company, with an authorized capital stock of $700 has been incorporated by W. M. Comas, W. T. Williams and Walter R. Gourd, all of this place.

QUINCY, ORE. (Columbia County,—Articles of incorporation have been filed by the Quincy-Mayger Telephone Company, with an authorized capital stock of $2,500, par value of shares, $25. The incorporators are Thos. Basse, J. H. Larson, and H. W. Brown, all of Quincy.

NASHVILLE, TENN.—A charter has been granted by Secretary of State Goodloe to the Home Telephone Company, of White county, with a capital stock of $5,000. The incorporators are William A. Davis, S. B. Johnson, A. S. Alcorn, C. W. Roberts, J. L. Jarvis. The company proposes to built a telephone line from Sparta to Cookeville, with such branch lines as may be needed.

MOSIDA, UTAH.—The Mosida Telephone Company has filed articles of incorporation with the secretary of state. The company takes over the telephone line between Lehi and Mosida in payment of the capital stock of $2,500, divided into 250 shares of $10 each. The officers are: L. B. Curtis, W. F. R. Mills, H. C. Allen, A. J. Stark and Roy P. Curtis.

RICHMOND, VA.—A charter has been issued to the Southeastern Telephone Company, of Spencer. The incorporators are: D. S. Bill, president; D. E. Moore, vice-president; W. C. Clanton, secretary; G. W. Clark, treasurer; all of Spencer. It is stated that the maximum capital is $5,000 and the minimum $500.

CHARLESTON, W. VA.,—The Putnam Telephone Company, of Hurricane, with a capital stock of $5,000, has been incorporated. The incorporators are J. S. Handley and others, of Putnam County.

FINANCIAL.

CRAB ORCHARD, KY.—The Lincoln County Home Telephone Company, of this place, has increased its capital stock from $2,000 to $3,000 and will build extensions over the county. The most important line projected is from Crab Orchard to Stanford, a distance of 20 miles.

JACKSON, MISS.—Two telephone companies have filed their report with Secretary Maxwell, of the Mississippi Railroad Commission, for the quarter ending June 30. The first of these is the Florence Telephone Company with total receipts of $91.29 and operating expenses of $88.76, leaving a net revenue of $2.53. The Meadville Telephone Company shows a heavy falling off in business as compared with the corresponding quarter of 1909. Receipts from all sources for the last quarter were $137.40, against $356.26, or a decrease of $227.86. The operating expenses were $224.85, leaving a net loss of $87.45.

GUTHRIE, OKLA.—A total public service corporation valuation of $222,505,964 is shown by figures given to the public by State Auditor M. E. Trapp. A comparative statement of the assessments of all of the wire corporations is as follows: Telephones, 1910, $3,075,098; 1909, $2,882,086. Telegraph, 1910, $1,301,493; 1909, $1,328,402.

PHILADELPHIA, PA.—The Bell Telephone Company of Pennsylvania has increased its capital stock from $41,550,000 to $59,995,400 by the issuance of 184,454 shares of the par value of $100 each. S. Perssol, of Philadelphia, Pa., is treasurer.

PROVIDENCE, R. I.—Notification has been given to the state that the Westerly Automatic Telephone Company has increased its capital stock from $100,000 to $125,000 by a vote of the corporation. The notification is signed by John Champlin, president, and others of the corporation.

AUSTIN, TEX.—Taxes have been paid by the Texas telephone companies as follows: The Lufkin Telephone Company, tax $32.19, gross receipts $3,479.39; McKinney Telephone Company, tax $55.57, gross receipts $3,705.23; Eurego Telephone Company of San Antonio, tax $197.24, gross receipts $13,149.97; Lacy Telephone Company of Longview, tax $60.34, gross receipts $4,050.34; Hamilton-Hico Telephone Company, tax $33.45 gross receipts $2,330.20; Northwest Texas Telephone Company of Canyon City, tax $142.49, gross receipts $9,499.61.

FRANCHISES.

YREKA, CAL.—The Cedar Park Rural Telephone Company has been granted permission to erect and maintain a telephone line along the public highway from Mayten north a distance of ten miles.

BRUNE, MINN.—The Sandstone Telephone Company has been granted a franchise to maintain and construct a telephone line in this village.

KENNETT, MO.—The Southeast Missouri Telephone Company has applied for a new franchise at this place, which will probably be granted. The company proposes to install a new common battery board and to reconstruct the outside plant here.

COLOME, S. D.—A franchise has been granted to the Missouri Valley Telephone Company for the installation of a telephone system in the town of Colome. The toll line is to extend from Iona, Lyman county, to Roseland and Kenyon in Tripp county.

CALVERT, TEX.—At a regular meeting of the city council, an application was made by a local company for a franchise for an Independent telephone company. The organization of the company will be arranged and a charter applied for at once.

EDMONDS, WASH.—The Edmonds Independent Telephone Company has been granted permission to erect a line along a mile and a half of the Brackett Landing road.

MENOMINEE, WIS.—At a recent meeting of the common council, the Tri-State Telephone & Telegraph Company was granted the franchise for which it had petitioned.

CONSTRUCTION.

BERRYVILLE, ARK.—The Berryville Telephone Company has completed a line from this place to Marble, Madison County.

ARENZVILLE, ILL.—The Home Telephone Company expects to install a new switchboard some time next month.

PEORIA, ILL.—Contracts have been let for telegraph, telephone and electric light service at the state militia encampment grounds. By means of these facilities it is planned to unite the different brigade headquarters with the general headquarters so that communications will be established. It will be necessary for the telephone and electric light companies to erect nearly three miles of poles in addition to the lines already established. For the telephone service, a switchboard, with three trunks and fourteen substations will be established.

TERRE HAUTE, IND.—The Big Four Railroad Company has completed the installation of telephones between this city and Malloon, Illinois. Trains are now being despatched between this city and St. Louis by telephone.

CONCORDIA, KANS.—The Concordia Telephone Company now has a direct copper line to Abilene, the same having just been finished. It already had a copper line, but passed through Clay Center. The new line is direct to Abilene, and there are no intermediate stations.

McLOUTH, KANS.—A. G. Manning, superintendent of McLouth Telephone Company, is erecting a building which will be occupied by the telephone central office and other business firms.

WAUKON, MINN.—The Standard Telephone Company will erect a copper line to Caledonia.

HENDERSON, KY.—At the annual meeting of the Henderson Home Telephone Exchange, the board of directors were instructed to purchase central equipment for the Henderson plant and to make other extensive improvements.

MAURICE, IA.—The Maurice Telephone Company has made many improvements to its system, including the installation of a new switchboard.

FLAT RIVER, MO.—The Kinloch Telephone Company has completed its lines from St. Louis to Bonneterre and connections have been made with the Lead Belt Telephone Company.

BEATRICE, NEBR.—The new Home Telephone Company of this city is building a trunk line from Barneston to Beatrice, via Liberty.

NEVADA CITY, NEV.—A telephone line is being constructed from Truckee to the different rangers stations in the Tahoe National Forest. When this line, which is 21 miles in length, is completed, work will be started on a line twelve miles long for the Floriston Pulp and Paper Company.

SCRANTON, N. D.—The Midway-Stillwater Telephone Company will construct lines from Midway to Belfield and from Hume to Purcell.

STIRUM, N. D.—The Hample-Crete Telephone Company has purchased the farmers' line running out of this place and will extend it to Gwinner.

WOLFORD, N. D.—Work is to be commenced soon on the line to be constructed to Rolette for the Junita Farmers Telephone Co. The line will run via Pleasant Lake, Rugby and Nanson, a distance of about 31 miles.

COLUMBUS, OHIO.—The Dayton, Lebanon and Cincinnati Railroad is installing portable telephones in all stations and on all trains. Instruments will be carried on both freight and passenger trains and will be used for train orders. A fish pole arrangement will be used for connecting the wires.

TITUSVILLE, PA.—The Forest Telephone Company has completed a trunk line between West Hickory and Tidioute Hotel. Work will be commenced at once under Manager Cottle, building up a telephone business at Tidioute. For many years the Bell company has enjoyed a monopoly of the business in that borough. The Petroleum Telephone Company will extend its lines from Pleasantville to Tidioute, connecting with the Forest company's central exchange there.

RAPID CITY, S. D.—The Black Hills will soon be in communication with the eastern part of the state by another telephone line, the Great Western Telephone Company expecting to have its poles in here some time this year. The line has so far been constructed west from Fort Pierre to Phillip and work is being rushed to complete the intervening distance. The line is being laid across the prairies instead of following the Bad River valley, and will connect with the numerous towns along the railroad. A metallic circuit is being strung. The company will establish a toll station here.

BRADY, TEX.—Russell Bailey of Wichita, Brown county, is putting in a telephone exchange in the new town of Melvin, 17 miles west of Brady.

TAYLOR, TEX.—Receiver E. A. Glass of Austin, manager of the Independent Telephone Company, has informed the Talyor Board of Trade that he is making arrangements for the installation of new switchboards and improved service in the Taylor office and that within sixty days these improvements and betterments will have been installed. Mr. Glass states to the board that the service in Taylor will be made first-class in every particular.

SAN ANGELO, TEX.—The San Angelo Telephone Company has been forced by the increased business in West Texas to install a new long distance switchboard which will give the patrons facilities double those now available. Toll calls through the exchange now number 600 per day which is a big increase over the traffic of former years.

SHEBOYGAN, WIS.—The Citizens Telephone Company is about to begin extensive improvements, costing from $8,000 to $10,000, in its system about this city and Sheboygan Falls. It will replace most of its present overhead wires with a cable system. In Sheboygan about two and a half miles of cable will be installed. In Sheboygan Falls over a mile of cable will be put up.

ELECTIONS.

DETROIT, MICH.—At the annual meeting of the Down-River Telephone Company at Wyandotte a 3 per cent dividend was voted on the stock and a 6 per cent dividend paid on the bonds. The following officers were elected for the ensuing year: President, C. H. Lord; vice president, Henry Roehring; treasurer, C. F. Babcock; secretary, M. A. Losee. With H. H. Robinson, these officers constitute the board of directors.

BONESTEEL, S. D.—A meeting of the directors of the Gregory County Interstate Telephone Company was held in Bonesteel. The present corps of officers were re-elected for the ensuing year. They are: President, Wm. Krotter; vice president, C. A. Johnson; secretary and treasurer, S. M. Lindley. A representative of the Farmers' Telephone Company was present to confer with the officers of the Interstate company in regard to a plan of consolidating the two different exchanges at both Bonesteel and Fairfax. The idea was taken under advisement and F. L. Scott, manager of the Interstate company was instructed to draw up plans of consolidation which will be submitted later.

MISCELLANEOUS.

CONWAY, ARK.—L. H. Pyle has purchased the Conway Telephone Company from J. A. Frisby of Morrilton and has assumed active management of the affairs of the company. Mr. Frisby purchased the telephone system from Mr. Pyle about two years ago and has been managing the systems at Conway and Morrilton.

LOUISVILLE, KY.—News has been received in Louisville Independent telephone circles of the sale of the Stithton Telephone Exchange, at Stithton, Ky. Mrs. Sidney B. Hall purchased the exchange from Paul Smith, who formerly operated the exchange. The system covers a large territory in that section and is exceedingly well equipped.

ALEXANDRIA, LA.—The Alexandria Independent Telephone Company which was recently organized, will install a common battery system here.

NAPOLEON, OHIO.—Ralph P. Brown of Toledo, has been appointed receiver for the Napoleon Home Telephone Company. The receiver was named after Attorney Walter F. Brown had filed on behalf of the Cleveland Trust Company, a petition to foreclose a mortgage of $50,000 on the property of the company. This mortgage was the security for a bond issue to a like amount, the Cleveland Trust Co. being the trustee for the bondholders. The company was thrown into the hands of the receiver because it has not paid any interest on its bonds since July 1, 1909.

Of the total outstanding bond issue of $50,000 the trustees of the Ohio German Fire Insurance Company are in possession of $33,000. Judge Michael Donnelly was president of the telephone corporation whose capital is $50,000. The trustees of the Ohio German Fire Insurance Co. precipitated the receivership, being the majority bondholders of the telephone company. They intend to place the plant in as good physical condition as they can and then offer it for sale as a going concern in order to realize as much as possible for the creditors of the Insurance company from the $33,000 of the telephone bonds which they hold. The remaining $17,000 of the company's bonds are owned in Fort Wayne, Ind., and in Cleveland. The stock is owned in Napoleon.

PORT TOWNSEND, WASH.—The Independent Telephone Company has been awarded the contract for furnishing the three forts of this place with telephone service.